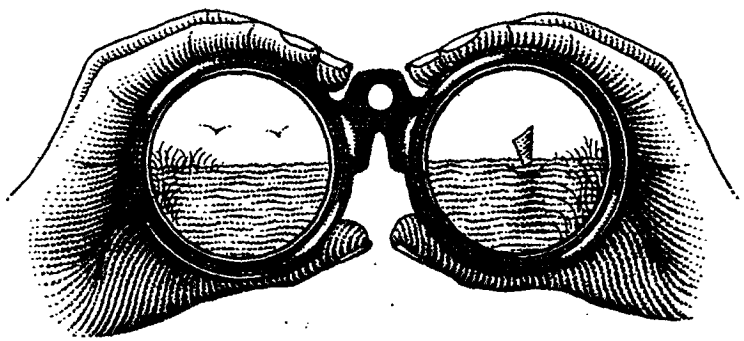
Documents attached to September 20, 1999, comment letter from Friends of the Estuary (comment letter no. 1221)

- Bay-Delta Environmental Report Card (March 1999)

BAY-DELTA ENVIRONMENTAL REPORT CARD

San Francisco Estuary Project
CCMP Workbook
March 1999



BAY-DELTA ENVIRONMENTAL REPORT CARD 1996-1999

INTRODUCTION

Everyday, millions of Californians use, and sometimes inadvertently abuse, the waters of the San Francisco Bay-Delta Estuary.

Shippers load and unload cargo and ballast water from foreign ports; families fish off the pier for Sunday dinner; industries cool, wash, dilute, recycle and discharge.

In homes, toilets are flushed, on streets, oil is changed, in gardens, roses are sprayed, all adding pollutants to the stream of wastewater and stormwater flowing into our rivers and the Bay. Tailpipes churn out smoke and dust that rain and runoff carry back into the water.

Big dams block rivers and collect drinking water, and big pumps and canals convey it to homes and businesses throughout the state. In some years, droughts steal supplies, in others storms overwhelm levees and flood homes. But no matter what the weather, there's never seems to be enough water to keep the fish healthy, the marshes wet and the thirst of millions slaked.

A host of government bodies, meanwhile, manages and regulates all these activities. One mans the export pumps and controls reservoir releases; another protects endangered frogs and birds; another issues health warnings to consumers of Bay fish. Some decide how much pollution must be removed from an industry's wastewater before it can stream into rivers and the Bay. Some decide how many acres of wetlands or feet of streamside willows must be bought or built in order to offset losses to shoreline development. Environmental and community groups, meanwhile, champion more flows, more wetlands, more freeflowing creeks and fewer chemicals for the sake of the environment.

In this context, what is it that environmental managers and concerned organizations and communities should be doing to protect and restore the Estuary? That "To Do" list came out in 1993 in the form of the *Comprehensive Conservation and Management Plan for the Bay and Delta.*

The plan lists 145 actions to save fish, conserve water, protect wetlands, reduce pollution, and facilitate environmentally sound land use decision-making. It was developed by the San Francisco Estuary Project, a cooperative federal-state partnership organized through the U.S. Environmental Protection Agency's National Estuary Program. The project brought together 100 private, government and community interests to develop a consensus plan, which was then signed by the Governor and the U.S. EPA Administrator in 1993.

The CCMP remains the only approved, completed ecosystemwide plan for balancing environmental protection and beneficial use of the Estuary's resources — and thus serves as the perfect litmus test for a report card on how we're doing. The Estuary Project released the first such report card in 1993 (*CCMP Workbook*), which totaled up progress on all 145 actions. This report card looks at the top ten critical issues of recent years, priorities chosen as in special need of attention and action. The priorities zero in on 31 CCMP actions. Efforts to implement the actions — some as small as urging boaters to scrape Atlantic zebra mussels off their boats before heading west, some as large as monitoring the entire Sacramento River system for contaminants — are listed herein. The scope of any such accounting in an area draining 40% of California remains near impossible, but a fair share of the major efforts appear on these pages, especially those of large government bodies that often fall short on the job of reporting back to the public.

In February 1999, the S.F. Estuary Project brought together its stakeholders to revisit the top ten priorities. The group expanded and refined the top ten, to target some of the tougher new issues of the time, including multi-media pollution problems (where pollutants move between air, land and water); agricultural runoff; wetlands protection by individual landowners; integration of the myriad estuary research and management programs; and freshwater flows for the Bay, not just the Delta.

CONTENTS

AGENCY ABBREVIATIONS

Army Corps: United States Army Corps of Engineers
Bay Commission: San Francisco Bay Conservation and Development Commission
BurRec: United States Bureau of Reclamation
CALFED: CALFED Bay-Delta Program
Coastal Conservancy: California Coastal Conservancy
Cal Fish & Game: California Department of Fish and Game
Central Valley Regional Board: Central Valley Regional Water Quality Control Board
Dept. of Water Resources: Department of Water Resources
IEP: Interagency Ecological Program
S.F. Estuary Institute: San Francisco Estuary Institute
S.F. Estuary Project: San Francisco Estuary Project
S.F. Regional Board: San Francisco Bay Regional Water Quality Control Board
State Board: California Water Resources Control Board
U.S. EPA: United States Environmental Protection Agency
U.S. Fish & Wildlife: United States Fish and Wildlife Service

REPORT CARD

PRIORITIES	FULL	SUBSTANTIVE	MODERATE	SOME	NEGLIGIBLE
WETLANDS		1.5 Restore non-wetland areas to wetlands	1.1 Regional wetlands plans 3.1 Expand acquisition programs 3.2 Expand assistance to landowners	2.2 Enhance wetland biodiversity	
INTEGRATION			1.1 Refine and coordinate monitoring	2.2 Set sediment quality objectives 4.3 Develop ocean and upland testing procedures	
ECONOMIC INCENTIVES			5.1 Create economic incentives for local government		5.4 Identify financial barriers
URBAN RUNOFF			2.4 Improve urban runoff management 2.5 Long term pollution prevention education	2.1 Pursue a mass emissions strategy 2.5 Develop transportation controls	
WATERSHEDS		4.1 Educate the public about human impacts	3.1 Prepare watershed management plans		1.1 Watershed management through local general plans
EXOTIC SPECIES			2.1 Control ballast water discharges 2.3 Control problem exotics 2.4 Educate the public on exotics	2.2 Prohibit intentional introductions	
CCMP AWARENESS	1.5 Provide a central Estuary clearinghouse			1.1 CCMP awareness 1.2 & 1.3 CCMP citizen involvement	
ESTUARY AWARENESS		2.2 Build awareness of need to protect Estuary			
REGIONAL MONITORING			2.1 Develop regional monitoring strategy		
CCMP INCLUSION					

Rating Notes

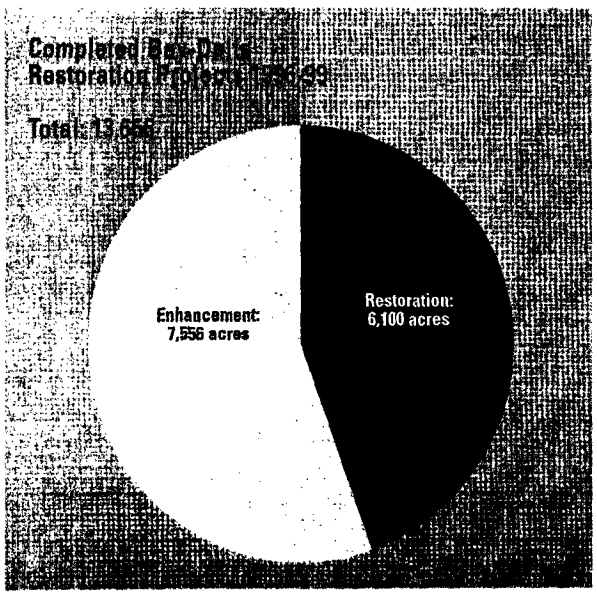
NEGLIGIBLE No or negligible or peripheral progress.
SOME Minimal progress (up to 25%).
MODERATE Fair level of progress, clear strides ahead (25-50%).
SUBSTANTIVE Major progress (50-75%).
FULL Full implementation completed or on the horizon (75-100%).

The ratings given to each action in this summary and in the *CCMP Report Card* were added as a rough, ballpark evaluation of the level of implementation progress. This evaluation sought to measure how items listed as progress in the workbook stacked up against the specific language and intent of the CCMP (particularly the "WHAT" sections detailing each action). In some cases therefore, there may be many items listed in the workbook but a low implementation rating (because of their peripheral nature to the intended action).

REPORT CARD SUMMARY

WETLANDS —

With only 3-4% of the Bay-Delta's historic wetlands still intact, it's no wonder that local interests have identified protecting and restoring wetlands as a top priority, critical to the future health of the estuarine ecosystem. Major leaps ahead on the wetlands front since 1996 include much more detailed scientific research documenting the historic and current extent of Bay wetlands, better (but still inadequate) accounting of wetland losses, better monitoring of the success of restoration efforts, and new science-based goals for where and what kind of wetlands we need to create in the next 100 years to have a healthy Bay. These efforts, combined with some government driven planning efforts in the North Bay and CALFED's efforts upstream, provide the essential building blocks for creation of regional wetlands management plans. But such efforts have also raised the ire of private landowners, shoreline businesses and duck club owners whose lands may be targets for restoration. Addressing their concerns may be an essential next step.



In terms of the numbers, fewer wetlands and riparian zones have been protected through acquisition since 1996 than in the prior three year period, falling from 18,677 acres in 1996 to 10,183 in March 1999. During the earlier period the vast majority of reported acquisitions were baylands (namely the unusually big purchase of almost 10,000 acres of North bay salt ponds) , whereas the more recent review included much larger acreages of riparian zones and floodplain (6,106 acres in the San Joaquin River Wildlife Refuge alone). Acres protected by perpetual conservation easements over private lands in the Central Valley and Suisun Marsh grew from 67,292 to 75,000 acres between 1996 and 1999.

Funds to accomplish acquisition goals remain very limited, requiring more patching together of dollars from diverse sources. The only sizable chunk of new change for acquisition and restoration came from the state's Prop 204, CALFED, and the Category III Fund — funding sources that may reinforce the trend toward more river-oriented acquisitions aimed at restoration in the Delta.

On the restoration front, the number of acres actually restored or enhanced grew from at least 8,137 acres in 1996 to at least 13,656 acres of wetlands in March 1999. The number of restoration projects in the planning stages, many with no guarantee of construction funding, also swelled, from at least 12,693 acres in 1996 to 19,109 acres in March 1999 (note, a few projects have stayed on the planned list since 1996). Where most projects might have been undertaken as mitigation for development of wetlands in the past, the vast majority of current projects are aimed at the health of the ecosystem. The acreage of wetlands restored far outpaced that lost, if inventories of permitted development projects are to be believed. Finally, programs providing incentives to individual landowners to flood their land for seasonal waterfowl and wetlands continued to grow— enhancing or restoring over 90,000 acres as of 1999— but did not keep up with demand (the owners of at least 47,000 acres still want to sign up).

INTEGRATION & REGIONAL MONITORING —

Those outside of government have long clamored for the bureaucratic behemoth to become more efficient, and for it to catch up faster with the latest science and politics. These priorities call for better integration of the myriad regulatory, planning, management and scientific research programs being undertaken on behalf of the Bay-Delta Estuary, and its users, and for expansion of existing scientific monitoring programs. But progress remains slow and illusive on this front.

Since 1996, the S.F. Estuary Institute's Regional Monitoring Program (RMP) has certainly improved and broadened its $2.9 million per year, discharger-funded testing of Bay waters and sediments for contaminants and water quality violations. The S.F. Bay Regional Water Board, in turn, has used the data generated as a consistent reference point for its regulatory actions and policies. The Institute, meanwhile, has expanded scientific research into other areas identified as critical by the priorities, among them wetlands, watersheds and exotic species. Examining how land use affects pollution, water management and restoration efforts remains a big gap, however.

Better integration may also result from the fact that research efforts throughout the Bay-Delta now include much more work on ecosystem processes and linkages, with the Institute, U.S. Geological Survey and Interagency Ecological Program all undertaking studies targeted at filling data gaps so that water and restoration managers can make more informed decisions. In the same time period, the new concept of "adaptive management" has gained support and substance as government agencies recognize the need to constantly "adapt" their activities to new findings and conditions. If CALFED can carry out its promise to phase in modification and restoration of Delta waterways, and assess ecosystem responses via an elaborate and extensive system of monitoring and research, and then adjust its actions accordingly, then government management will have indeed improved. But that is far in the future.

Lastly, an increasing emphasis on "watershed" management — in which sources of pollution, land use and restoration efforts are looked at on a watershed scale — has great potential to break governments and local interests out of their boxes. Likewise, recognition of the need to address cross-media pollutants like diazinon and dioxin — which are traveling through air, water and land — is forcing air and water agencies to talk turkey. But like adaptive management, all these efforts are still only in the fledgling stages. As a whole, progress on integration and monitoring expansion has fallen far short of what's necessary.

ECONOMIC INCENTIVES —

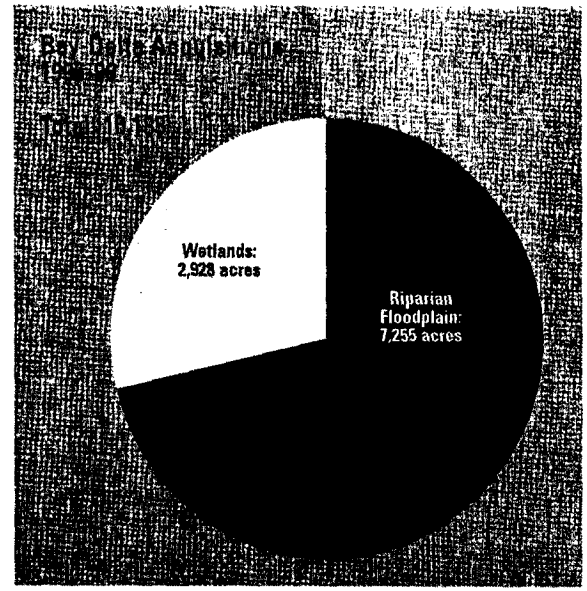
Local governments are really where the rubber meets the road, at least when it comes to wetland, creek and watershed protection. All the regional, state and federal initiatives to save such resources can't go anywhere until local governments make it part of the fabric of local land use decision-making. Providing economic incentives to local government to do right by the environment is the focus of this priority. A fair amount of progress was made on this front with passage of state Proposition 204 in November 1996, which provided $15 million for counties and local agencies to undertake restoration projects in the Sacramento, San Joaquin and Trinity River watersheds ($10 million has since been awarded). Apart from this single source of new incentives upstream, the Clean Water Act's 319(h) program continued to provide funding for watershed management and nonpoint source pollution control — providing dollars to 10 local agencies in 1997-1998. But as a whole, not nearly enough incentives have been provided to facilitate local government action on a substantial scale, and new development — which often impacts wetlands, creeks and watersheds — continues to be the best source of revenue to local governments, an inherent conflict.

URBAN RUNOFF —

The Bay's come a long way since the yellow, smelly waters of the 1970s. Citizen outcry and clean water legislation have resulted in strict and effective controls on most pollutant dischargers coming out of a pipe. Today, just as three years ago, the most significant source of many Estuary pollutants is stormwater runoff from streets, parking lots, landscaping and other urban surfaces, as well as from farmfields upstream.

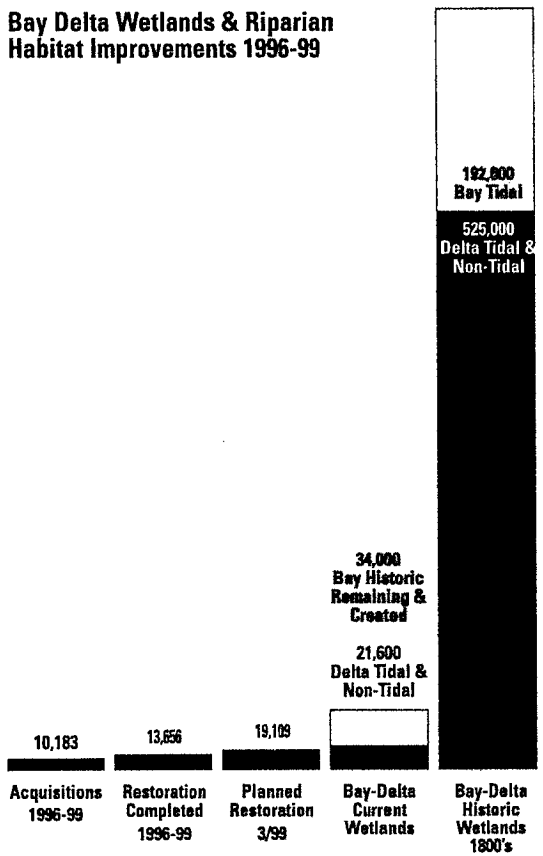
Recent years have produced a proliferation of city, county and community programs aimed at controlling the urban runoff that is the central thrust of this report card priority. Most of these programs rely heavily on public education activities ranging from storm drain stenciling programs to COKE cans carrying pollution prevention messages to a pilot Integrated Pest Management project focusing on stores selling garden pesticides. A particular new target of latter days is erosion from development construction sites — with the association of Bay Area stormwater agencies and the S.F. Regional Board doing an effective song and dance of education and enforcement. Meanwhile, the S.F. & Central Valley Regional Boards recently began developing new measuring sticks and regulatory hammers aimed at curbing mercury, pesticides, and several other pollutants in the Bay-Delta watershed. These take the form of setting total maximum daily allowable loads (TMDLs) for each pollutant in each water body, but work on this front is still very much in the R&D phase.

One massive source of pollution flows to the Bay — transportation systems — remains largely unaddressed, however, despite being spelled out in the fine print of this priority. Likewise, enforcement of existing laws regulating discharges of contaminated stormwater continues to lag.



WATERSHED MANAGEMENT — No matter how many pollution problems get fixed, creeks get cleaned and wetlands get restored down on the waterfront, what happens upstream can easily ruin progress. Since the mid 1990s, water managers, regulators and watchdogs at all levels have recognized the need to manage water quality problems from the headwaters in the ridges and mountains right down to the Bay and Pacific Ocean. State and federal policies and programs increasingly emphasize coordinated watershed-based approaches to water quality issues. Since 1996 watershed management plans and programs have been developed throughout the Estuary region, including major initiatives on the Sacramento and Napa Rivers, and in the Santa Clara basin, and smaller programs focusing on Bay Area and Central Valley creeks. However, all are essentially volunteer and stakeholder based, and most are hampered by the enormous research and consensus-building requirements necessary to address large land areas and diverse land uses and human activities. Full implementation of this worthy priority will require much more political will and funding. In the meantime, no new watershed protection plans have been incorporated into local general plans since 1996.

Bay Delta Wetlands & Riparian Habitat Improvements 1996-99



"Sources: *1999 REPORT CARD* and *1998 SIERRA TO THE SEA* report, THE BAY INSTITUTE"

EXOTIC SPECIES —

Three years ago scientists announced that San Francisco Bay was the most invaded estuary in the world, and since then a lot of local momentum has built up for stronger state and federal regulation on the issue. Most of the invading clams, worms, crabs, fish, plants and other organisms arrive from foreign ports via ship's ballast water, and once discharged into our waters there's very little anyone can do to control their spread, short of poisoning the entire system. So considerable effort, largely on the part of Baykeeper and the Marine Conservation Center, has gone into focusing attention on the ballast water issue. As a result, the Port of Oakland plans to adopt mandatory ballast water exchange requirements for ships docking at its berths early next century, the S.F. Regional Board has listed exotic species as a pollutant threatening beneficial use of the state's waters under the Clean Water Act, and the U.S. EPA has received a petition backed up by a letter from 17 legislators urging them to roll back Clean Water Act exemptions for discharges "normal to the operation" of vessels. The Coast Guard, meanwhile, will release voluntary national guidelines for ballast water management in April 1999, a possible prelude to mandatory regs. Likewise, many local groups (including the S.F. Estuary Institute and Project, and Seagrant) have conducted and publicized new research, spread the word through newsletters and conferences, and begun boater and shipper outreach programs on exotics issues.

Meanwhile, fish and wildlife managers continued to battle problem species already in the system. Some scrambled to separate a sudden horde of clawing mitten crabs from fish salvaged from the suck of the water export pumps in 1998. Some treated Lake Davis to remove the voracious Northern Pike (this fish even eats ducks), and to prevent its spread to the Delta. Some teamed up to stop the Atlantic zebra mussel from crossing the 100th Meridian via interstate boat traffic. Others tackled invasive flora such as Atlantic cordgrass and giant cane, which are wreaking increasing havoc on wetland and creek restoration efforts. Of all the priorities, perhaps the most progress has been made on this front — compared to a mere scraping the surface in the 1993-1996 report card period. Despite the gathering momentum, however, no actual mandatory controls on ballast water have yet been made law.

PUBLIC AWARENESS & CCMP INCLUSION —

The last three priorities call for building public support for implementation of the CCMP, making sure that the CCMP's already approved actions are built on by and reflected by other major Estuary management and planning efforts, and creating more public awareness about the need to protect and restore the Estuary. Clearly, the CCMP, as a plan without a strong and well-funded implementing body, has gotten little attention and generated little action in and of itself in the past three years. However, it has found a valuable new purpose as a reference point for this report card, and for future accountability on the part of the hundreds of parallel efforts to provide drinking water, save our salmon, restore wetlands and build a healthier estuarine ecosystem.

Its consensus building effort long ago has certainly laid the groundwork for many successful environmental projects and programs undertaken by its participants today. A few of its initiatives — among them the S.F. Estuary Project's Delta's In-Channel Islands program — have been adopted by CALFED. All the attention bestowed on CALFED, meanwhile, fails to acknowledge the Delta-centered program's lack of attention to important Bay issues and actions identified in the CCMP.

But the public, finally, is definitely more and more aware than it was of the Estuary and its trials and tribulations. Clear progress has been made in creating public awareness through conferences, newsletters, education programs and this report card. Today, there are numerous programs and vehicles designed to increase public awareness of the CCMP's goals and plans, and dozens, if not hundreds, of school-based education programs focusing on the Estuary and promoting environmental stewardship.

PRIORITY 1. Expand, restore and protect Bay-Delta wetlands.

Action

WILDLIFE 1.5

Identify and convert or restore non-wetland areas to wetland or riparian-oriented wildlife habitat.

96-99 93-96

SUBSTANTIVE

Government & Private Initiatives

Public, private and cooperative plans, programs and good intentions

- Creation of a new North Delta National Wildlife Refuge was approved by U.S. Fish & Wildlife in July 1997, with a potential size of as many as 48,000 acres. The Service is now preparing an environmental assessment that addresses transfer of Prospect Island from BurRec to Fish & Wildlife, as well as acquisition of other lands in the Yolo Bypass. Prior significant restoration work on the Yolo Basin Wetlands served as a catalyst for the new refuge, which will eventually include a combination of open water and seasonal and tidal wetlands.
- The In-channel Island Workgroup organized by the S.F. Estuary Project collected 25 signatures on a coordination of efforts agreement to protect the Delta's 800-odd island fragments, which are home to fish, wildlife, wetlands and riparian plants. The program is now conducting planning and permitting for four demonstration restoration projects — one on Little Tinsley Island and three off Webb Tract. The projects will test "soft" (as opposed to hard rip rap) techniques for both erosion control and promotion of sediment deposition. Results will be passed on to agencies and landowners interested in channel island restoration (see also Priority 10).
- California Partners in Flight launched a statewide Riparian Habitat Joint Venture in 1994, and have since secured signatures from 18 federal, state and private organizations to protect and enhance habitats for native landbirds.
- The 1996 Water Resources & Development Act earmarked $600,000 (thanks to the efforts of the San Pablo Bay Partnership) for in-depth technical research and assistance for North Bay restoration projects. A plan for the program — which is primarily focused on identifying and prioritizing North Bay projects, and on analyzing appropriate restoration options for each project — is now being developed by the Army Corps. Potential projects for technical assistance include lower Sonoma Creek, Miller Creek, American Canyon Creek and Pinole Creek. The Corps is also seeking additional funding.

On-the-Ground Implementation

Examples of specific, local completed or in-progress projects

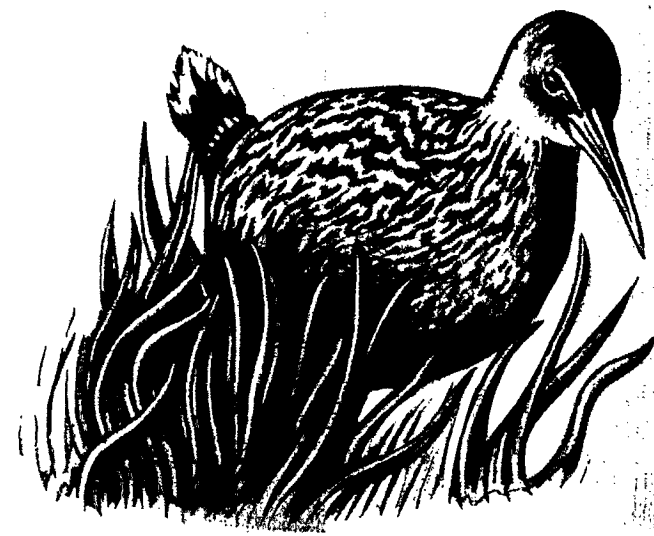
- In the Bay-Delta, at least 13,856 acres of wetlands have been restored (6,100 acres) or enhanced (7,556 acres) since 1996 (not including mitigation projects) — nearly double the amount completed in the 1993-1996 accounting (8,137 acres). Plans for 28 projects now on the books would restore an additional 17,878 acres and enhance another 1,231 acres (some of these projects have no guarantee of implementation funding) — also an increase over the 1993-1996 levels (12,693 acres). An additional 3,579 acres and 200,000 feet of wetlands and riparian zones have been created or are planned as mitigation projects as of March 1999.
- Major Bay-Delta wetland restoration projects completed since July 1996 or now under construction include Marin's Gallinas and Rush Creeks; San Francisco's Crissy Field; the East Bay's Arrowhead/Martin Luther King Shoreline and Ora Loma Marsh; the North Bay's Tolay Creek, Point Edith, Bay Point Marsh and Martinez Shoreline Marsh; and the Delta's Venice Island and Stone Lakes refuge.
- In the Bay region, wetland acreage restored or enhanced continued to outpace the amount lost to development, according to the S.F. Regional Board's first comprehensive log of mitigation projects over the past decade. The log suggests that at least 557 acres were lost to development between 1988-95, with a compensating 523 created or restored, and 632 enhanced, during the same time period. For the period of 1996-1998, 71 acres were lost and 145 created or restored as mitigation. What's unclear is whether the ecological value of the wetlands restored equals those of any lost.
- The beneficial reuse of dredged material to enhance habitat restoration continues to be championed by local agencies and the marine industry. Projects following in the footsteps of the pilot Sonoma Baylands project are planned or underway at Marin's Hamilton base, Oakland's Middle Harbor, and Solano's Montezuma Wetlands.
- In the legal Delta, the Department of Water Resources continues to work to protect and create shaded riverine habitat (SRA) under the flood protection program established by the state's 1988 Delta levees act (SB 34 & AB 360). Habitat enhancement projects since 1996 have included initial construction work on Solano's Prospect Island that will lead to creation of 20,000 lineal feet of SRA in 1999; planning for creation of 1,400 feet of SRA on Canal Ranch; monitoring of riparian plant survival at Grizzly Slough restoration sites; and preparation for the 1999-2000 construction of a two acre island off Sherman Island berm, of 75,000 feet of SRA and 43,000 feet of emergent marsh on Twitchell Island, and of 10 acres of riparian/wetland habitat on Decker Island.

Current Gaps & Roadblocks

- Lack of a clear, strong state policy on the conversion of farmland for habitat restoration. In 1998, farming interests raised questions about the relative environmental and public good values of farmland versus habitat, and called for consideration of potential mitigation for the hundreds of thousands of acres proposed for conversion by CALFED.
- New research shows that many restoration projects on former salt ponds and baylands are quickly invaded by Atlantic cordgrass (see Priority 6, AR 2.3) — particularly near large seed sources in the South Bay. How to address such problems has not been resolved.
- Poor documentation of wetlands lost to small fills and under "nationwide" permits.

Ideas & Opportunities for Further Progress

- Use reclaimed water to restore wetlands and dilute salts at former salt ponds slated for restoration. The Sonoma County Water Agency is already exploring how to pipe reclaimed water into the Napa-Sonoma marshes for bittern dilution, and San Jose is interested in finding new uses for its reclaimed water.
- Champion a coordinated effort to slow the invasion of Atlantic cordgrass.
- Seek grants through the new federal Five-Star Restoration Program, an outgrowth of President Clinton's Clean Water Action Plan. Grants of $5,000-$20,000 are to support community based wetland and riparian restoration projects, to build diverse partnerships, and to foster natural resource stewardship.



WETLANDS

PRIORITY 1.

Action	Government & Private Initiatives Public, private and cooperative plans, programs and good intentions	On the Ground Implementation	Current Gaps & Roadblocks
WETLANDS 1.1 Prepare Regional Wetlands Management Plan(s). 96-99: MODERATE 93-96	• A *San Francisco Estuary Baylands Ecosystem Goals* report was completed by scientists and resource experts in March 1999 to provide a scientific foundation for a regional wetlands management plan, as well as guidance for the current surge of wetland restoration and mitigation projects (the goals themselves have no regulatory authority). The Goals report identifies what kinds of wetlands the Bay needs and where, and in what quantities, to function as a healthy ecosystem — and includes 124 site-specific restoration actions. The Goals recommend that today's 40,000 acres of tidal marshes be expanded to around 100,000 acres (compared to 190,000 historically), with compensating drops in salt production ponds, agricultural baylands and non-tidal marsh managed for waterfowl. • Recovery plans for tidal marshes and vernal pools are due out in 1999 from U.S. Fish & Wildlife. Though not regulatory management plans, they will provide political weight for goal setting and funding priorities. • A commitment to develop a strategy for creation of a regional wetlands management plan, based on the Goals described above, was recently made by U.S. EPA and the S.F. Regional Board (six months of part time staff committed by each). Such a strategy would evaluate current efforts and gaps, and include technical workshops on how to move ahead. • The Bay Institute's 1998 *Sierra to the Sea* report provides a new resource for ecosystem restoration planning on a regional and watershed scale. The report documents historic ecological functions of the Estuary watershed and changes in, among other things, wetland acreages. For example, Delta intertidal and non-tidal wetlands are now 21,600 acres or only 4% of historic, and S.F. Bay tidal wetlands (not including newly-formed wetlands) are now 16,000 acres or only 3% of historic. • The Bay Commission's North Bay partnership with eight local governments continued to develop information and tools that will help the governments protect wetlands through their general plans and ordinances. Since July 1996, the Commission has completed several background reports and, more recently, sought to address conflicts with landowners and farmers fearful of increased regulation. A new report on agriculture is due out in March 1999. • CALFED completed a draft *Ecosystem Restoration Program Plan* (ERPP) in 1997, which included 700 restoration actions, among them the conversion of 250,000 acres of agricultural land to habitat — the nearest thing to a regional plan for the Delta now on paper. In terms of wetlands, the ERPP proposed Bay-Delta restoration of 8,600 acres of shallow water habitat and intertidal mudflats; up to 10,000 acres of saline wetlands; up to 60,000 acres of freshwater marsh; 35,000 acres of seasonal wetlands; and 25-45 linear miles of riparian and riverine habitat. Other actions focused on protection and enhancement of existing wetlands. The ERPP was widely criticized as being a menu of actions, not a plan. As a result, six top scientists produced a *Strategic Plan for Ecosystem Restoration* for CALFED in 1998, which CALFED adopted in early 1999. The two restoration plans will eventually by updated and folded into the total CALFED package of actions aimed at balancing water supply and environmental concerns in the Delta. CALFED released its preferred alternative for Delta reconfiguration in December 1998 and an EIS/EIR is expected out this spring. The total package will not only restore and protect diverse habitats and floodplains, but also reduce contaminants of concern to wetlands and assist watershed groups in working to improve riparian conditions. • In 1998, planning for a Bay wetlands monitoring program to assist with regional management planning got underway. The program, spearheaded by U.S. EPA and the S.F. Estuary Institute, will monitor acres, conditions and functions at everything from pristine wetland sites to mitigation and restoration projects. • An implementation strategy for the San Francisco Bay Joint Venture — using the Ecosystem Goals as a scientific foundation — will be complete by spring 1999. The strategy sets nine-county acreage goals for restoration, acquisition and enhancement, and estimates the costs of implementing these goals.		• Considerable fears and opposition on the part of local landowners to any regional planning effort, particularly in the North Bay. • Some landowners are concerned about what they perceive as a coordinated government effort to gain control of their land. Some question the science used to identify their lands as restoration or protection targets. • Limited support for development of a regional wetlands management plan. Current support lies largely with government agencies and developers. Environmentalists prefer to see a voluntary implementation plan developed for the Ecosystem Goals, so as not to scare off landowners with new regulatory initiatives. Environmentalists also believe that any such voluntary approach to regional planning and protection should be backed up by rigorous enforcement of existing wetland regulations and laws. • The considerable DWR and private investment in maintaining the Suisun Bay managed marsh complex may not be appropriate to long-term ecosystem health, according to the Goals.

PRIORITY 1.

Action	Government & Private Initiatives Public, private and cooperative plans, programs and good intentions	On-the-Ground Implementation Examples of specific, local completed or in-progress projects	Current Gaps & Roadblocks	Ideas & Opportunities for Further Progress
WETLANDS 3.1 **Expand wetlands acquisition programs or establish a new Estuary-specific wetlands acquisition program.** 96-99 93-96 MODERATE	• The Ecosystem Goals process (see WT 1.1) provides a new ecological foundation for setting restoration priorities, which now needs to be integrated into existing agency planning and permitting programs, and public-private acquisition programs.	• In the Bay-Delta region, at least 10,183 acres of wetlands (2,928 acres) and riparian zones and floodplains (7,255 acres) have been acquired for protection and restoration since mid 1996. Fewer wetlands have acquired than in the slightly longer 1993-1996 review period. Acres protected by perpetual conservation easements over private lands in the Central Valley and Suisun Marsh grew from 67,292 acres in 1996 to over 75,000 acres in early 1999. • The S.F. Bay Area Joint Venture, established in 1995, has since helped its partners acquire 3,175 acres of wetlands, and restore 871 acres. It has leant support and expertise to at least 30 public-private wetland projects. The Venture currently has a list of 87 pending and potential acquisition and restoration projects. • The San Francisco Bay Area Conservancy program was established in 1998 to be administered by the Coastal Conservancy. Though not currently funded, this program provides a new institutional framework for supporting many priority actions in the CCMP such as wetland and riparian habitat acquisition, water quality and environmental education projects. The program covers the entire nine-county Bay region and its goals are to protect, restore and enhance natural habitats, watersheds, scenic areas and other open space resources of regional importance, and to improve public access. To achieve its goals, the Conservancy may undertake projects directly or award grants to public and non-profit entities. • New (or perhaps just redirected) sources of funding for major habitat projects have been CALFED, Prop 204, the Category III Fund established by water users under the 1994 Bay-Delta Accord, and the CVPIA. Between 1995 and 1998, these sources allocated a total of $59.8 million to 20 acquisition-related wetland, floodplain and riparian habitat projects. Among the largest projects were acquisitions along the Cosumnes River ($33.2 million); in the San Joaquin River floodplain ($20 million); on the South Napa River ($1.43 million) and along Deer and Mill Creeks in the upper Estuary watershed ($1 million). (See Appendix A).	• Funding available for acquisitions remains pretty much the same as the prior review period — despite the priority placed on wetland protection. Sources of dollars and methods of acquisition are more diverse, however. • Funding is still scarce for agencies to plan restoration projects, as well as to maintain, manage and monitor them. • Lack of funding to date for the new S.F. Bay Conservancy Program. • Land valuation procedures are based on the "highest and best use" without factoring in a "conservation value," resulting in lower values for wetland and ecosystem restoration purchases than many landowners believe are reasonable.	• Restoration and acquisition projects continue to be chosen largely on a willing seller and opppr-tunistic basis, rather than to attain specific ecological objectives or to save wetlands from the threat of development. Some combined consideration of all these factors may be necessary to achieve the best regional results. • Support four park bonds now pending in the state legislature. • Better channel and target mitigation dollars and projects by developing a regional priority list for wetland acquisition and restoration, and a coordinating mechanism governing its use. • Encourage state and local governments to seek Better America Bonds for wetland acquisitions, easements and restoration projects. The bonds — part of the Clinton Administration's current proposed budget — will enable state and local governments nationwide to issue $9.5 billion in bond authority over five years.

PRIORITY 1.

Action

WETLANDS 3.2

Expand existing private, state and federal financial and technical assistance programs to individual landowners.

96-99 93-95

MODERATE

Government & Private Initiatives

Public, private and cooperative plans, programs and good intentions

- The landowner-based North Bay Alliance received a grant from U.S. EPA in 1998 (which it matched with its own funds) to develop a report giving an agricultural perspective on the opportunities and constraints for North Bay wetlands and environmental protection. The report is expected out in late 1999.
- The Partnership for San Pablo Baylands, organized by Save the Bay, continued to work to promote wetland and wildlife-friendly stewardship in the North Bay. The partnership produced an educational film and report about the history and value of the baylands in 1997, and began trying to help landowners undertake on-farm wetland protection. The partnership released a stewardship plan in spring 1999, and is now seeking funding to implement the plan.
- The Bay Commission proposed a regional mitigation banking system in 1998 in an attempt to improve the quality of wetlands restored for mitigation purposes and to create a regional system of wetland debits and credits for developers. The proposal has since been on hold due to mixed support.
- The Bay Conservancy (see previous page) also funded, will provide new dollars for technical assistance to landowners.

On-the-Ground Implementation

Examples of specific, local completed or in-progress projects

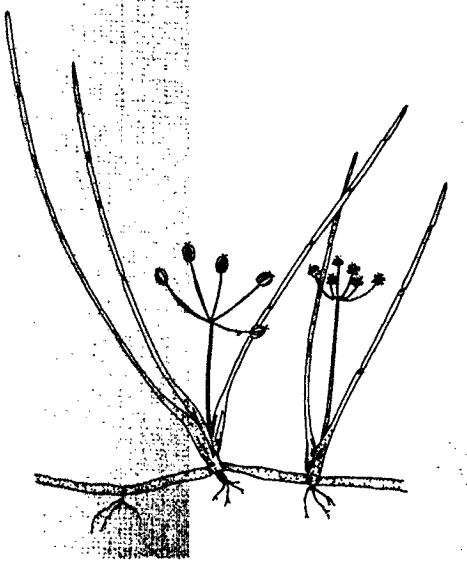
- In the Bay-Delta, U.S. Fish & Wildlife's Partners for Wildlife Program continues to reimburse landowners for fish and wildlife habitat improvement projects, spending $150,800 to restore or enhance 2,683 acres since 1986.
- In the North Bay, three vernal pool mitigation banks were established in 1998 by multi-agency/stakeholder based Santa Rosa Vernal Pools Task Force. Since established, developers have purchased 30 credits in the mitigation banks and 60 credits in the creation bank.
- The new CVPIA Agricultural Waterfowl Incentives Program, launched in the winter of 1997, has facilitated enhancement of 38,000 acres of farmland in the Central Valley to date. The $1 million per year program provides incentives for farmers to keep lands flooded between October and February for waterfowl use. Incentives offered average around $25 per acre — an amount which approximates water supply and pumping costs for the flooding. The program ends in 2002, unless reauthorized.
- Cal Fish & Game's Permanent Wetland Easement Program expanded its holdings of perpetual conservation easements on private lands in the Central Valley from 1,403 acres in 1996 to 4,206 acres at present (the program has basically used up its hefty 1992 start-up grant and now needs new funding). Fish & Game's Prealey Program (also known as the California Waterfowl Habitat Program) has also expanded, from 23 properties and 6,500 acres in 1996 to 46 properties and 11,777 acres. This program (funded by interest on the $3 million California Waterfowl Preservation Account and duck stamps) pays farmers $20 per acre to undertake a 10-year flood and vegetation management effort. There's not nearly enough funding, however, to sign up the 148 landowners of 47,124 acres interested in joining the program.
- The Wildlife Conservation Board's Inland Wetland Program continued at about the same level as previous years, spending $1.38 million to secure 1,813 acres of wetland easements from Central Valley landowners between fiscal year 1996-1997 and present, and $1.4 million on 33,875 acres of restoration work.
- Ducks Unlimited recently expanded its Valley Care program into the North Bay. The expanded program will continue to provide technical and legal assistance to landowners regarding wetlands acquisition, restoration and protection through easements. Funds will also go to building fish screens, developing consensus on GIS models, and restoring and enhancing wetlands.

Current Gaps & Roadblocks

- Lack of centralized information on who has what assistance to offer, and of landowner awareness of grant programs. Too much paperwork also puts off landowners.
- Gross underfunding of existing programs.
- Some landowners have complained that financial help is only offered in exchange for giving up "inalienable" private property and development rights. These landowners suggest paying them per acre per year not to develop, or giving them tax credits, which would enable them to preserve their property rights.

Ideas & Opportunities for Further Progress

- New monitoring requirements now being attached to permits for mitigation and restoration projects by oversight agencies may help regional managers to better assess successes and failures, and to guide landowners and developers accordingly.
- Find out the needs of baylands property owners and help them financially with repairs to levees, ditches, roads and other infrastructure in exchange for managing their lands in an environmentally-friendly way.



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PRIORITY 1.

Action

WILDLIFE 2.2

Enhance the biodiversity within all publicly owned or managed wetlands and other wildlife habitats as appropriate.

93-96

Government & Private Initiatives

Public, private and cooperative plans, programs and good intentions

- Ecosystem Goals recommendations (see Priority 1, WT. 1.1) attempt to make sure all species and natural communities (some of which are not that "diverse") are represented and supported, not just native endangered species.
- The California Biodiversity Council (a 38-member statewide group of local, state and federal governments) continues to work to preserve biodiversity. Efforts since 1996 have included holding regular council meetings in all bioregions and producing informative videos, brochures, newsletters and data bases on ecosystems and federal-state-local partnering. A new priority is to move from communication to action, and to facilitate on-the-ground watershed projects for local governments.
- Resource managers and restoration planners are increasingly aware of the need to create more diverse assemblages of wetland habitats, which include not only tidal areas but seasonal wetlands and supporting uplands.
- A regionally coordinated eradication program for Atlantic cordgrass (*Spartina alterniflora*) — which has been displacing native wetland plants at an alarming rate and homogenizing habitat — was recently proposed by scientists and resource managers (see Priority 6, AR 2.5).

On-the-Ground Implementation

Examples of specific, local completed or in-progress projects

- Several regionally extinct marsh plants are currently being reintroduced by U.S. Fish & Wildlife at Bay Area restoration projects now under construction. San Francisco's Crissy Field restoration was specifically redesigned to accommodate California sea blite, Point Reyes birds beak and salt marsh owls clover; Pier 98 restoration will also include the blite.
- Volunteers in the Sausal Creek Watershed Awareness Program have cleared 30,000 square feet of riparian habitat and adjacent upland of non-native vegetation, propagated native plants grown from remnant plant communities in the watershed, and planted them at the restoration site. Volunteers are also conducting monthly monitoring of bird populations in the restoration area.
- All the restoration projects described in this report card and listed Appendix A should, if successfully completed and maintained, enhance the biodiversity of the estuarine ecosystem as a whole.

Current Gaps & Roadblocks

- No steps to make managed marshes support more diverse wildlife than waterfowl — one of the original aims of this action.
- The former emphasis on "biodiversity" has broadened into the now popular "ecosystem" planning and management.
- Federal S.F. Bay wildlife refuges are not scheduled to begin a management plan, which might include new commitments to biodiversity enhancement, until at least 2005.

Ideas & Opportunities for Further Progress

- Complete the new Alameda wildlife refuge for least terns. Planning work will be finalized in June 1999 for creation and restoration of the proposed refuge's 565 acres of land and 400 acres of open water. Naval clean up and site preparation is still incomplete.

PRIORITY 1: WETLANDS SUMMARY

AVERAGE IMPLEMENTATION LEVEL:

25-50%

PRIORITY 2.

Integrate and improve regulatory, planning, management and scientific monitoring programs.

Promote multi-agency development and adoption of regulatory requirements and monitoring protocols to expedite implementation of ecosystem planning; address multi-media (water/land/air) and local/regional relationships; and secure additional funding.

Action

AQUATIC RESOURCES 1.1

Refine and coordinate existing monitoring programs to: better evaluate ecosystem responses to immediate, phased and long-term water quality and flow standards; more fully characterize ecosystem processes and properties; and enhance predictive capabilities of ecosystem models.

96-99 MODERATE

93-96

Government & Private Initiatives

Public, private and cooperative plans, programs and good intentions

- The state/federal Interagency Ecological Program (IEP) continues to refine its research efforts and programs monitoring fish movements and flow conditions in the Delta. (See next column for examples).
- The S. F. Estuary Institute (SFEI) has continued its Bay contaminants monitoring programs including the Regional Monitoring Program (RMP), facilitated scientific agreement on regional wetland goals (see Priority 1, Wetlands 1.1), and created a significant new data base called the *EcoAtlas* integrating GIS and other information on Bay habitats and wildlife. New monitoring and research programs since 1998 include watershed science and biological invasions. Collaborating on the RMP are the U.S. Geological Survey in Menlo Park and Sacramento, and the State Department of Water Resources.
- A Memorandum of Understanding directing coordination between IEP and SFEI expired in 1996 and was not reinstituted. However, both programs have continued to work toward integration and collaboration through CALFED.
- A CALFED plan for a *Comprehensive Monitoring, Assessment, and Research Program* (CMARP) was developed collaboratively by IEP, SFEI, and the U.S. Geological Survey with stakeholder and agency staff input in 1998. CMARP's purpose is to provide the new facts and scientific interpretations necessary for CALFED to implement its preferred alternative (as well as its related ecosystem restoration, water quality and other programs), and for the public and government to evaluate the success of CALFED actions. The draft CMARP plan was released for public review on January 15, 1999. After review and CALFED approval, CMARP will implement selected high-priority tasks during 1999 while refining monitoring designs and priorities for targeted research.
- A *Strategic Plan for Ecosystem Restoration* in the Delta was developed for CALFED by six top scientists in 1998 and then revised by CALFED in early 1999. The plan lays out clear strategy and protocols for an adaptive management approach linking research and monitoring with management decisionmaking; better defines the meaning of "ecosystem management;" and addresses ecological modeling. If applied and implemented, the strategy could significantly help integrate and improve Estuary restoration programs.

On-the-Ground Implementation

Examples of specific, local completed or in-progress projects

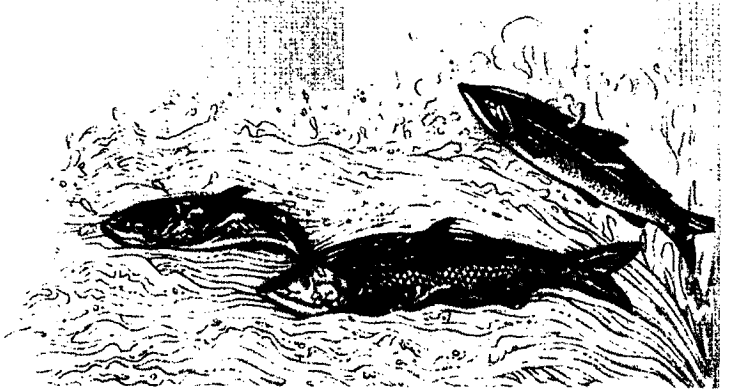
- Since 1995, the CALFED operations group has facilitated operation of the state and federal water projects using near real-time fish data provided by IEP. These efforts have assisted the recovery efforts of listed species while continuing to provide urban and agricultural water supply south of the Delta. In support of such improved management, IEP has not only expanded its real-time monitoring of Delta smelt, splittail, salmon races and steelhead, but also organized related workshops and targeted research projects.
- Nine continuous flow measurement stations have been established in the Delta by USGS as part of IEP. In recent years, data from the stations have been used to measure tidal and net flows from the Sacramento to the San Joaquin side of the Delta, to show the flow balance in the south Delta, and to better calculate Delta outflow to San Francisco Bay.
- The Grasslands Monitoring Program to evaluate selenium inputs and reduction efforts by farmers and drainers in the western San Joaquin Valley was started in 1996 through cooperation of state and federal agencies, and agricultural interests.
- The Sacramento River Watershed Program, organized in recent years by the Central Valley Regional Board, has set up one of the region's newest, largest and most comprehensive monitoring efforts. Among other things, the program seeks to address all water-quality issues within the watershed and to integrate water quality and compliance monitoring.
- A long-term environmental monitoring program for San Pablo Bay was developed by a team from U.C. Davis, SFEI, USGS Sacramento, and the Pt. Reyes Bird Observatory (using a grant from U.S. EPA and NOAA). The project included development of indicators and demonstration of an integrated monitoring program to help separate natural from anthropogenic environmental impacts.
- *A Watershed Science Plan* was completed by the S.F. Estuary Institute in 1997. It describes how to collect the kind of information from local watersheds necessary to understand them, and thus manage restoration and pollution control efforts better. Use of the new plan is now being demonstrated in Permanente and Wildcat Creeks.

Current Gaps & Roadblocks

- Despite new and increased monitoring all around, there has been little improvement in the coordination of programs.
- Inability to address the increasing number of pollution problems that don't fit in agency or jurisdictional boxes. Contaminants such as diazinon and dioxin are multi-media problems, with diverse sources and pathways through land, air and water. Such pollutants promise to pervade until regulators of both air and water, as well as land use decisionmakers and local communities, team up to identify priority sources and solve problems cooperatively on a watershed basis.
- No easy way to find out about all available data.
- Continued failure to resolve water diversion impacts on the ecosystem. Until this gridlock is broken, many other conservation programs could amount to nothing.

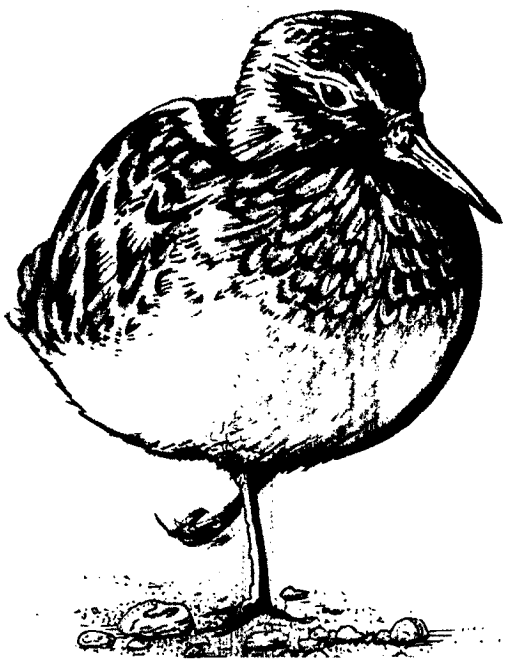
Ideas & Opportunities for Further Progress

- The State Water Resources Control Board created a plan for a Coastal Ambient Monitoring Program (CAMP) to conduct water and sediment quality, bioaccumulation, and contaminant effects monitoring along the entire California Coast, including San Francisco Bay. The Plan is yet unfunded, but has strong support from the water quality boards.
- U.S. EPA's EMAP will be conducting an integrative monitoring project on the West Coast in 1999. A major symposium is planned for San Francisco in April, 1999.
- With the completion of the Regional Wetlands Goals Project, the focus is now turning to creating a Regional Wetlands Monitoring Program. Staff from the U.S. EPA, the S.F. Regional Board and the S.F. Estuary Institute are working *towards such a program.*
- Create a data base of data, coordinating information on what types of data are already available from a wide variety of projects and sources. Its purpose would be to limit duplication of research and waste of research dollars, and to *link related programs and data collection efforts.*
- Consider renewing Memorandum of Understanding on cooperation between the Delta's Interagency Ecological Program and the Bay's S.F. Estuary Institute.

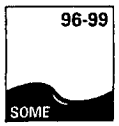
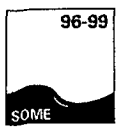


PRIORITY 2.

Action	Government & Private Initiatives Public, private and cooperative plans, programs and good intentions	On-the-Ground Implementation Examples of specific, local completed or in-progress projects	Current Gaps & Roadblocks	Ideas & Opportunities for Further Progress
AQUATIC RESOURCES 1.1 CONTINUED	• Since 1995, the Category III fund has financed numerous projects in support of CALFED. Each project funded required a monitoring plan and the coordination of those plans will occur under CMARP. • In 1997, a new interagency resource manager/scientists group formed called the Napa/Sonoma Marsh Restoration Group in an effort to coordinate scientific and technological research in the North Bay, as applied to restoration. As a test case, they hope to apply principals from the fledgling regional wetlands monitoring program to the North Bay. • In 1998, a series of essential ecological indicators were completed by a scientific team organized by the Environmental Defense Fund. The 10 EEIs — which cover everything from endangered species and marsh habitat to water quality and geomorphology — are designed to provide scientifically meaningful but publicly accessible indicators of the Estuary's health in the decades ahead. Who will use the new indicators and how remains to be decided. • Creation of an electronic program in which dischargers can report directly to the S.F. Regional Board on monthly compliance with their NPDES permits was funded in 1998 with ACL dollars (pollution fines). The software and programming for the new reporting system — developed by Friends of the Estuary — are now on-line and being truth-tested. • Support for multi-media monitoring linking pollution inputs from air, water and land continues to grow in theory but not in practice. As a first step, regional agencies including the Association of Bay Area Governments, the Metropolitan Transportation Commission and the Bay Area Air Quality Management District recently held their first joint meeting on the subject.	• Numerous ecosystem-management based studies have been undertaken by IEP and USGS in the last few years. They completed simultaneous salmon mark-recapture and dye-transport studies to assess San Joaquin salmon smolt survival during passage through the Delta — studies that formed the basis for design of the *Vernalis Adaptive Management Plan* released last year. They also sponsored ecological and circulation studies of Suisun Bay to investigate the mechanisms associated with the x2 salinity and flow standard — studies suggesting that the physical mechanisms of particle and organism accumulation near x2 are different than originally hypothesized. • A workshop to evaluate the effectiveness of the x2 flow standard was held in 1998. At the workshop, scientists shared information and discussed the standard. • Other new projects undertaken by IEP include: development of a set of priorities for assessing ecological effects of contaminants in the Delta, which form the basis of a research proposal solicitation package soon to be released by CALFED; examination of the biology and ecological effects of mitten crabs; and posting of most of its data and that of other major monitoring programs (CVPIA and Sacramento River Watershed Program) on the world wide web (including design of a process to expand coverage to all of CMARP). • Collaborative recent studies on the part of USGS and the State Department of Water Resources have included assessment of the mechanisms of land subsidence in the Delta (with pilot projects for recovering land surface to sea level); and assessment of organic carbon emissions of Delta islands (a major source of disinfection by-product precursors in the drinking water supply). • A major water quality study of the San Joaquin valley was recently completed by USGS, with results published as part of the USGS National Water Quality Assessment Program. An analogous study of the Sacramento Valley under way.		



PRIORITY 2.

Action	Government & Private Initiatives Public, private and cooperative plans, programs and good intentions	On-the-Ground Implementation Examples of specific, local completed or in-progress projects	Current Gaps & Roadblocks	Ideas & Opportunities for Further Progress
DREDGING 2.2 Develop and set sediment quality objectives.  93-96	• The Bay Protection and Toxic Clean-up Program reached a milestone in 1998, producing clean-up plans for hot spots in the Central Valley, Delta and San Francisco Bay. The program generated a large volume of data that could be used in the development of sediment quality objectives, including new and improved protocols for sediment testing and the use of reference sites. • CALFED, under a designated action, set aside $500,000 in Prop 204 money for developing criteria for the Central Valley Regional Board to permit reuse of material dredged from the Delta.	• Ambient sediment contaminant concentration guidelines were promulgated by the S.F. Regional Board in 1998. The guidelines provide statistical boundaries for background or ambient sediment contaminant concentrations, based on data from the Bay Protection Program and the RMP.	• No formal sediment quality guidelines have been adopted for San Francisco Bay as there are no funds specifically for that task. • Loss of funding for the Bay Protection and Toxic Clean Up Program (vetoed by Governor Wilson).	
DREDGING 4.3 Revise Public Notice 87-1, *Interim Testing Procedures for Evaluating Dredged Material Suitability for Disposal in San Francisco Bay*, and develop testing procedures and protocols for ocean and upland environments.  93-96		• An *Inland Testing Manual for Dredged Material* was issued by U.S. EPA in 1998.	• Lack of a coordinated, interagency effort to address dredged material disposal and sediment testing procedures upstream of the Bay. The Bay Area's LTMS program, which is nearing completion of an interagency/stakeholder developed 50-year Long Term Management Strategy for Dredged Material Disposal, should push for a similar effort for the freshwater environment involving DWR, CALFED and the Army Corps.	*See Priority 9 for information on implementation of research and monitoring objective 2.1*

PRIORITY 2: INTEGRATION SUMMARY

AVERAGE IMPLEMENTATION LEVEL:

8-17%

PRIORITY 3.

Create economic incentives that encourage local government to implement measures to protect and enhance the Estuary.

Make federal and state funds available for local watershed planning and other programs that protect the Estuary; identify financial barriers to and propose alternative funding arrangements for environmentally sensitive land use.

Action	Government & Private Initiatives Public, private and cooperative plans, programs and good intentions	On-the-Ground Implementation Examples of specific, local completed or in-progress projects	Current Gaps & Roadblocks	Ideas & Opportunities for Further Progress
LAND USE 5.1 Create economic incentives that encourage local governments to implement measures to protect and enhance the Estuary. 96-99 MODERATE 93-96	• Local government agencies are among those eligible to apply for watershed planning, restoration and education grants funded through CALFED, Category III and the CVPIA.	• Proposition 204, passed by voters in November 1996, provided $15 million for the Delta Tributary Watershed Restoration Grant Program whereby counties and other local agencies could propose projects of up to $1 million for restoration in the Sacramento, San Joaquin and Trinity River watersheds. Sixteen projects, totaling approximately $10 million were approved in the first round of funding. Another 15 projects have been recommended for funding in 1999. • The Clean Water Act's 319 (h) grant program has focused during the past several years on watershed management planning and implementation and nonpoint source pollution prevention. In 1997 and 1998, 10 Bay-Delta agencies received funds, including Alameda County which received $130,00 for Alameda Creek watershed management and Placer County which received $219,000 for watershed management activities on Sacramento River tributaries.	• Laws such as Propositions 13 and 218 encourage new development, which is often the only way to raise funds for infrastructure improvements. • Laws regarding "takings" discourage changes in allowable land uses by local governments. The threat of litigation makes the cost of refusing permits for new development too high.	• Better America Bonds would allow state and local governments to preserve open space and protect water quality by purchasing easements or acquiring title to property including wetlands and threatened farmland. The Clinton Administration's FY 2000 budget includes funding to enable state and local governments to issue $9.5 billion in bond authority over five years. • The Administration's FY 2000 Lands Legacy Initiative provides $83 million for the National Oceanic and Atmospheric Administration, including $19 million to states for estuary protections, and $50 million for the Department of the Interior for matching grants for open space protection planning. • The federal Transportation Equity Act for the 21st Century provides funding for sustainable alternatives to urban sprawl. • Lobby for implementation dollars for the Coastal Zone Management Act, to be reauthorized in 1999. • The Santa Clara Valley Watershed Management Initiative's Land Use Subcommittee is exploring ordinances and other mechanisms to help communities protect the watershed. • Find out the needs of baylands property owners, and help them financially with repairs to levees, ditches, roads, barns and other infrastructure in exchange for managing their lands in an environmentally-friendly way.
LAND USE 5.4 Identify financial barriers to implementing the actions recommended in the Land Use Management Program and propose alternative funding arrangements. 96-99 NEGLIGIBLE 93-96			• No progress whatsoever.	

PRIORITY 3: ECONOMIC INCENTIVES SUMMARY

AVERAGE IMPLEMENTATION LEVEL:

12-25%

PRIORITY 4. Improve the management and control of urban runoff.

Action	Government & Private Initiatives Public, private and cooperative plans, programs and good intentions	On-the-Ground Implementation Examples of specific, local completed or in-progress projects	Current Gaps & Roadblocks	Ideas & Opportunities for Further Progress
POLLUTION PREVENTION AND REDUCTION 2.1 Pursue a mass emissions strategy to reduce pollutant discharges to the Estuary from point and non-point sources and to address the accumulation of pollutants in estuarine organisms and sediments. 96-99 SOME 93-96	• Development of total maximum daily loads (TMDLs) for pollutants has become a high priority for the U.S. EPA. Both the San Francisco Regional Board and the Central Valley Regional Board are developing TMDL plans for all water bodies on the 1998 303(d) list of impaired bodies. • Draft TMDLs for mercury have been developed by the S.F. Regional Board. The proposal includes an offset program for dischargers that would help pay for the cleanup of abandoned mines, one of the largest sources of mercury. • The Central Valley Regional Board, the Sacramento River Watershed Program and their 319(h) gant program have begun TMDL development for mercury, pesticides and dissolved oxygen loading in the Delta and its tributaries.	• An assessment of the environmental impact of copper and nickel is required by the 1998 revisions to the NPDES permit for the South Bay. The City of San Jose is providing $4 million for a special workgroup of the Santa Clara Basin Watershed Management Initiative (see Priority 5, Land Use 3.1) charged with developing total maximum daily loads (TMDLs) for both metals. The project is to be complete by the end of 2001.	• Limits on financial resources, data and scientific understanding of estuarine systems, as well as institutional resistance on the part of some agencies hampers TMDL development. • Agencies lack funding to evaluate waste loadings	• Research on methylation (the process by which inorganic mercury is converted to organic mercury) has been identified as a high priority by S.F. Regional Board staff. • Reducing pollutants in agricultural runoff may be the next focus of emissions reduction efforts. A waste discharge limit on selenium was imposed on farmers in the Grasslands Basin by the Central Valley Regional Board in 1998. • Deltakeeper has notified 16 Stockton-area businesses that it intends to file suit against them for failure to comply with the state's General Industrial Permit. More such notifications are expected.
POLLUTION PREVENTION AND REDUCTION 2.4 Improve the management and control of urban runoff from public and private sources. 96-99 MODERATE 93-96	• Three reports on diazinon and other insecticides in Bay Area water bodies were produced by the Urban Pesticide Committee, a Bay-Delta stakeholders' group charged with developing an urban pesticide control strategy. • Stormwater management programs started in 1993-96 continued to mature and expand. • CALFED's draft Water Quality Common Program addresses a number of urban and agricultural runoff pollutants, including pesticides and trace metals, and sets forth a general approach to solutions, including further studies.	• A pilot Integrated Pest Management (IPM) project was launched by the Central Contra Costa Sanitary District and the Palo Alto Regional Water Quality Control Plant in 1997, focusing on stores selling pesticides. Stores agreed to stock less toxic products and employees received training about their use. The project will be expanded throughout the region in 1999. In addition, Master Gardeners at the U.C. Davis Extension were trained in IPM and taught to lead IPM workshops for the public. • *Start at the Source*, a residential site planning and design guidance manual, was published in 1997 by BASMAA, which also held a series of workshops illustrating how BMPs for stormwater protection can be incorporated in developments. An updated edition incorporating BMPs for industrial and commercial development sites will be published in April 1999, and another series of workshops is planned for late spring. • Controlling erosion from construction sites is a priority for the S.F. Regional Board, which has imposed a number of large fines for violations and is conducting an intensive outreach campaign, including erosion control workshops and a manual developers and builders. • The settlement of a Deltakeeper suit against the Port of Stockton and its tenants over violations of the federal Clean Water Act included the development of a new Stormwater Pollution Prevention Plan for the facility and adoption of a number of BMPs to prevent contaminated stormwater discharges to the San Joaquin River.	• Only 20% of California businesses covered by the General Industrial Permit are in compliance with its requirements, according to estimates. • Regulatory agencies lack sufficient staff and resources to enforce existing runoff laws. • The Urban Pesticide Committee's effort to develop a strategy for reducing diazinon levels in Bay Area creeks was stalled by inability to reach a consensus. • There is an ongoing need for greater financial resources to establish the links from pollutant sources to urban runoff and water quality problems. • Resistance to new controls by state and federal regulatory agencies, some of which, receive funding from the pesticide industry, hinders efforts to reduce pesticides in runoff. • Changing codes and design standards presents a significant challenge. Many municipal codes mandate large impervious areas for streets and parking lots, and many stormwater conveyance systems are unnecessarily large.	• Sustainable Conservation, an environmental group, is conducting a feasibility study to determine if a partnership approach can be used to control non-point sources of pollutants. • Flood control and stormwater pollution prevention efforts should be linked.

PRIORITY 4.

Action	Government & Private Initiatives Public, private and cooperative plans, programs and good intentions	On-the-Ground Implementation Examples of specific, local completed or in-progress projects	Current Gaps & Roadblocks	Ideas & Opportunities for Further Progress
POLLUTION PREVENTION AND REDUCTION 2.5 Develop control measures to reduce pollutant loadings from energy and transportation systems. 96-99 SOME 93-96	• A monitoring program that makes a more direct link between air emission sources, particularly mobile sources, and pollutant loadings in the Estuary is being developed by BASMAA and the S.F. Estuary Project using funds from the Great Waters Program of the federal Clean Air Act. • A pilot study measuring the magnitude of pollutant loading to the Bay from air deposition is being conducted by the S.F. Estuary Institute and the City of San Jose. • A Brake Pad Work Group was formed in 1996 to bring industry, public agencies and environmental groups together to investigate the link between copper in brake pads and in surface water. Estimates suggest that up to 80% of the copper in stormwater entering the South Bay is from vehicle disk pads.	• The City of Mountain View's General Plan explicitly links transportation and water quality, and calls for congestion management strategies. New zoning is designed to concentrate housing and employment near planned light rail and CalTrain stations. • Bay Area CalTrans officials provided resources for S.F. Regional Board staff to oversee construction sites and help improve stormwater management following a lawsuit by Baykeeper over stormwater runoff. • Brake pad manufacturers recently began including an evaluation of the environmental effects of the products as part of research and design. • The Palo Alto Regional Water Quality Control Plant launched a public education campaign focusing on cars and water pollution in 1996.	• CalTrans resistance at the state level to dedicating resources or implementing policies to reduce runoff from roadways, construction sites or maintenance activities. • Brake pad manufacturers are not convinced that the original study linking brake pads to copper in surface water is accurate and want further research.	• Pursue funding from the federal Transportation Equity Act for the 21st Century, which provides funding for increasing public transit. Up to 20% of the cost of a transportation project may be used for environmental mitigation, pollution abatement or construction of stormwater treatment systems. EPA and Regional Board leadership can help stormwater projects get high priority for funding. • Explore using CalTrans' statewide discharge permit as a vehicle for pollution prevention. • The Bay Area Open Space Council has drafted legislation creating a Transportation Fund for Clean Water. Modeled on the Transportation Fund for Clean Air, the proposed program would impose a vehicle registration fee, to be used to mitigate for the effects of automobiles on Bay Area waterways. • Develop partnerships between water agencies, transportation agencies and public transit advocates to increase public awareness of the water pollution impacts of transportation systems.
PUBLIC INVOLVEMENT AND EDUCATION 2.5 Assist in the development of long-term educational programs designed to prevent pollution to the Estuary's ecosystem and provide assistance to other programs as needed. 96-99 MODERATE 93-96		• Friends of the Estuary assists other organizations in establishing educational projects, such as Save the Bay Association's Canoes and Sloughs program, and works with communities to establish Estuary Restoration Groups (hands-on habitat improvement projects involving local governments, schools, community groups, businesses and resource agencies.) • A series of workshops on erosion and sediment control for construction projects was conducted by the S.F. Estuary Project in conjunction with the S.F. Regional Board. Materials produced for the workshops include a Field Inspector's manual of guidelines for preparing a stormwater pollution prevention plan and a video. *See also Priority 8 (Public Involvement and Education 2.2)*		• New monitoring approaches examining the link between Bay Area stormwater education campaigns and environmental benefits.

PRIORITY 4: URBAN RUNOFF SUMMARY

AVERAGE IMPLEMENTATION LEVEL:

12-37%

PRIORITY 5.

Prepare and implement watershed management plans throughout the Estuary.

Include watershed management in Local General Plans; develop a manual of how to integrate local stormwater, watershed, wetland protection and other CCMP consistent planning initiatives; and educate the public about the connections between land use, transportation and water quality.

Action	Government & Private Initiatives Public, private and cooperative plans, programs and good intentions	On-the-Ground Implementation Examples of specific, local completed or in-progress projects	Current Gaps	Ideas & Opportunities for Further Progress
LAND USE 1.1 **Local General Plans should incorporate watershed protection plans to protect wetlands and stream environments and reduce pollutants in runoff.** 96-99 93-96 NEGLIGIBLE		• The city of Oakland adopted an ordinance designed to reduce stormwater pollution to streams, protect riparian habitat, ensure compliance with permit conditions and curtail wetland alterations. The ordinance, developed jointly by the City and the Friends of Sausal Creek, has been held up as a state-wide model.	• No local governments have adopted watershed protection plans since 1996. • 1998 revisions to California's General Plan Guidelines did not direct local General Plans to incorporate watershed protection plans or other specific CCMP recommendations.	• Public education efforts should highlight success stories to serve as examples for other communities.
LAND USE 3.1 **Prepare and implement Watershed Management Plans.** 96-99 93-96 MODERATE	• The Santa Clara Basin Watershed Management Initiative was launched in 1996 by the State Board, US.EPA and the S.F. Regional Board to coordinate regulatory activities on a basin-wide scale. The WMI is conducting a scientific watershed assessment to document the basin's environmental conditions and regulatory framework. Expected to be complete in 2000, the assessment will be the foundation of a regional watershed management plan. • The Sacramento River Watershed Program was spawned by the Sacramento River Toxic Pollutant Control Program to address all water quality-related issues within the watershed. A primary objective of the program is to coordinate and facilitate information sharing between individual watershed programs on Sacramento river tributaries and the broader Sacramento River program. • Planning efforts for a number of Central Valley creeks have been funded by the CVPIA, CALFED and Category III, including the American River, Butte Creek, Cache Creek, Deer Creek and the Yuba River. • The Alameda County Resource Conservation District has developed a source water protection plan for the Southern Alameda Creek watershed addressing pathogens, sediment and chemical contaminants.	• A watershed plan produced by San Francisquito Creek's Coordinated Resource and Management Planning (CRMP) process is being reviewed and integrated by local agencies. In addition, local agencies are looking to the CRMP for help in setting up a Joint Powers Authority to manage the creek using a watershed management approach. In the Bay Area, planning efforts are also underway for the Petaluma River, Alameda Creek, Alhambra Creek, Corte Madera Creek, San Leandro Creek, San Lorenzo Creek, Sonoma Creek and Stemple Creek. • The Napa County Resource Conservation District has developed an *Owner's Manual* for the Napa River that includes a watershed protection plan, although it has not been formally adopted by any other agency; the RCD also facilitates a citizen monitoring program and watershed stewardships for several tributaries to the river. The Napa Board of Supervisors has appointed a community task force to examine a variety of county-wide watershed issues. • Two Ranch Water Quality Planning Courses have been held for private landowners in Alameda and Santa Clara counties, conducted by the Alameda County Resource Conservation District, the USDA Natural Resources Conservation Service and UC Cooperative Extension. The course has assisted 15 landowners to complete water quality assessments and management plans for 35,675 acres that drain into the Bay.	• Watershed management plans require a significant level of cooperation between agencies that can be challenging to achieve. • There is insufficient funding available for watershed planning. In particular, funds are needed to ensure that environmental and community groups can afford to participate fully in stakeholder efforts. • There is no watershed planning effort for the San Joaquin River.	

PRIORITY 5.

Action	Government & Private Initiatives Public, private and cooperative plans, programs and good intentions	On-the-Ground Implementation Examples of specific, local completed or in-progress projects	Current Gaps & Roadblocks	Ideas & Opportunities for Further Progress
LAND USE 4.1: Educate the public about how human actions impact the Estuary.  93-96		• BASMAA's $1.2 million Regional Advertising Campaign used mass media outlets to bring stormwater pollution issues to the general public. BASMAA also teamed up with Coca Cola to produce 26 million cans of Diet Coke and Sprite carrying pollution prevention messages and information. In 1999 and 2000, a second BASMAA ad campaign will focus on pesticides and vehicle-related pollution. • A Palo Alto public education program links water quality with transportation to encourage public transit use. • *ESTUARY* newsletter, published six times a year by the S.F. Estuary Project and Friends of the Estuary, continues to educate more than 3,000 people about human impacts and environmental management efforts related to the Estuary. • An Equine Facilities Assistance Program has been developed by the Council of Bay Area Resource Conservation Districts to help prevent non-point source pollution from horse facilities. The program will develop five demonstration projects, each of which will develop a conservation plan, showcase conservation practices and provide educational opportunities. • Bay Area Citizens for Creek Restoration publishes a newsletter three times a year providing information on how the public can help protect and restore Bay Area streams. • The Sausal Creek Watershed Awareness Program emphasizes education about non-point source pollution, focusing particularly on gardening practices. *See also Priority 8 (Public Involvement and Education 2.2)*	• Media tend to focus on major environmental stories and disasters, ignoring the "real" story - the cumulative environmental impact of daily human activities.	• Sign creeks to heighten public awareness of their existence and create a constituency for them.

PRIORITY 5: WATERSHEDS SUMMARY

AVERAGE IMPLEMENTATION LEVEL:

25-42%

PRIORITY 6. Reduce and control exotic species introductions and spread in the Estuary via ship ballast and other means.

Action

AQUATIC RESOURCES 2.1

Develop, implement and enforce stringent regulations to control discharges of ship ballast water within the Estuary and adjacent waters.

93-96

Government & Private Initiatives

Public, private and cooperative plans, programs and good intentions

- President Clinton issued an executive order in February 1999 directing all federal agencies to work harder to control invasive species and prevent their introduction, and setting up a new multi-agency committee charged with coming up with an invasive species management plan in 18 months.
- A new Western Regional Panel on invasive species was created by NISA (see opposite), including 48 representatives from 19 states and four provinces, among them staffers from CALFED, the S.F. Estuary Project, and the S.F. Estuary Institute. The panel has since met three times, and split into inland and coastal committees. The coastal committee workplan focuses on information sharing, coordination, education, prevention, monitoring and research. Given more funding, the committee would like to develop alternative ballast water technology demonstration projects on the West Coast.
- A state hearing on ballast water problems and control options was held in October 1998 by Assemblyman Ted Lempert, Chair at the time of the Select Committee on Coast Protection. At the hearing, attendees and state representatives heard various options for state regulatory control of ballast water (see opposite). Lempert is now considering introducing legislation in follow-up.
- A report entitled *Ship's Ballast Water and the Introduction of Exotic Organisms Into the S.F. Estuary: Current Status of the Problem and Options for Management* was completed by the S.F. Estuary Institute in 1998, with funding from CALFED.
- The draft CALFED *Strategic Plan for Ecosystem Restoration* identifies invasive species as the biggest impediment to restoration of the Estuary, and worthy of "robust" control efforts. It sets goals of preventing the establishment of additional non-native species and reducing the negative impacts of established non-native species. Ten objectives cover everything from the elimination of further introductions via bait, the aquarium trade, aquaculture and ballast water (5% of 1998 levels by the year 2005) to the prevention of a zebra mussel invasion of California. How these goals and objectives will be implemented within the ERPP (see Priority 1, WT 1.1) remains to be seen. CALFED also recently funded interagency development of a specific Non-Native Invasive Species Strategic Plan.

On-the-Ground Implementation

Examples of specific, local completed or in-progress projects

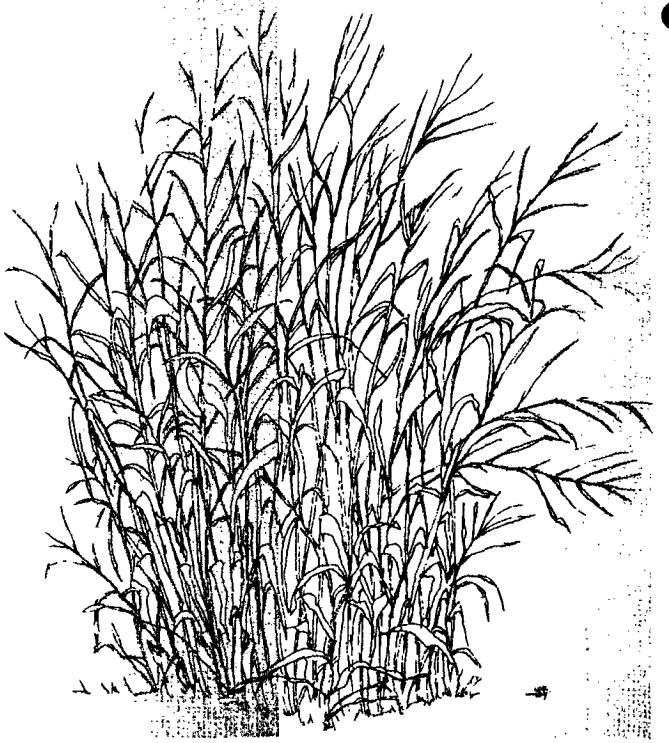
- The National Invasive Species Act (NISA) passed Congress in October 1996, mandating the development of national guidelines for ballast water exchange and control, and providing funds for compliance monitoring, as well as research and education. The U.S. Coast Guard expects to release the first round of guidelines by April 1999 (two years beyond the deadline set by the act). These voluntary guidelines will eventually be made mandatory if monitoring shows failure to meet compliance goals.
- A petition requesting that U.S. EPA repeal a 1973 regulation exempting "discharges incidental to the normal operation of a vessel" from Clean Water Act permitting requirements was submitted in January 1999 by a coalition of environmental, fish and water groups. The coalition — which includes BayKeeper, the Center for Marine Conservation and the Association of California Water Agencies — wants EPA to regulate ballast water discharges. The petition has since been backed up by a February 1999 letter to EPA from Congressman George Miller and 17 other legislators urging the agency to roll back the exemption.
- Invasive species were listed under the Clean Water Act as a pollutant impacting beneficial uses of the Bay by the S.F. Regional Board in 1998, partly thanks to pressure from BayKeeper. The State Water Board is considering a similar listing for its now-being revised *Ocean Plan*.
- The Port of Oakland will make ocean exchange of ballast water a condition of docking as of 2000-2003, in response to BayKeeper and Marine Conservation Center concerns over invasions due to the increased shipping resulting from several port improvement projects. The environmental groups are now pushing for full consideration of exotics impacts under the Endangered Species Act, and exploration of options for on-shore or on-board treatment of ballast water prior to discharge.

Current Gaps & Roadblocks

- Lack of national political will to legislate and enforce mandatory ballast water control. Roadblocks listed in the 1996 *CCMP Workbook / Report Card* included failure of California entities (including the CCMP IC) to press for regulations.
- Need for the same regulations up and down the Pacific Coast, and internationally to equalize impacts on ports and facilitate compliance on the part of shippers.
- Long-lead time required by ship designers and builders to put ships in the water that can more easily control, exchange, treat and/or monitor their ballast water.
- Little attention to documenting and addressing ballast water coming into the Estuary's upstream freshwater ports such as Sacramento and Stockton.

Ideas & Opportunities for Further Progress

- More research needs to be done on on-shore and on-board treatment options.
- Develop more complete economic analyses of the costs of exotic species impacts versus the costs of ballast water management, control and treatment.



PRIORITY 6.

Action	Government & Private Initiatives Public, private and cooperative plans, programs and good intentions	On-the-Ground Implementation Examples of specific, local completed or in-progress projects	Current Gaps & Roadblocks	Ideas & Opportunities for Further Progress
AQUATIC RESOURCES 2.2 **Prohibit the intentional introduction of aquatic exotic species into the Estuary and its watershed.**  93-96	• California's fish and game code already has provisions that could be applied to non-native species. Under the code, no live aquatic plant or animal may be imported into the state without approval and all fish, amphibia or aquatic plants deemed deleterious to other aquatic life may be destroyed. Likewise, it is unlawful to place or plant any live fish, any fresh or salt water animal, or any aquatic plant, in the waters of the state without inspection and written approval.	• New legislation (AB 1625) passed in 1998 in the wake of the Davis Lake debacles with Northern Pike (see below) beefs up state prohibitions (fish & game code 12023, 12024 and 12026). Under the new rules, planting live fish in the waters of the state may be a misdemeanor punishable with fines up to $50,000 and imprisonment. • The state Fish & Game Commission listed the Atlantic zebra mussel as a prohibited species several years ago.	• Enforcement remains limited.	
AQUATIC RESOURCES 2.3 **Control problem exotic species already in the Estuary.**  93-96	• An invasion of Chinese mitten crabs almost brought water exports to a halt in summer 1998, clogging essential fish salvage facilities at the Delta pumps. Water project operators are now scrambling to develop screening technologies in time to prevent similar back-ups next year. • A mitten crab fishery was proposed to the Cal Fish & Game Commission in 1998 with no resulting decision to date. • Local creek protection groups such as Friends of Sausal Creek have put mitten crabs on their "wanted" lists for sightings and monitoring. The crabs have been found in the upper reaches of many Bay creeks. • A study of introduced tidal marsh plants was completed by the S.F. Estuary Institute in 1998, and offered the first prioritized list of 15 species worthy of further research, monitoring and/or control. • Control of exotic wetland plants is gaining increasing local support. Research completed in 1998 shows that newly created wetlands are more often colonized by Atlantic cordgrass (*Spartina alterniflora*) than native species, leading some to call for a halt to restoration until the invader is under control. Options for a concerted *regional approach to Atlantic cordgrass eradication* — combining mechanical, chemical and legislative means — was the subject of a workshop held by resource managers and scientists in November 1998. • A new state-federal task force to stop the Atlantic zebra mussel at the 100th Meridian was launched in 1998. Its focus is to prevent the spread of the zebra mussel to western states via interstate recreational boating traffic. Boater education and check stations have already been set up on western highways in the 100th meridian states.	• Cal Fish & Game poisoned Lake Davis in 1997 to remove the voracious northern pike, a native predator from the Great Lakes region which eats salmon, smelt, trout and frogs, even ducks. This is the second such pike eradication effort — the pike is popular with game fishermen for its strong strikes and keeps being illegally introduced. Fish & Game is now following up with stepped up law enforcement and monitoring, which shows no return of the pike to Lake Davis to date. • State efforts to clear water hyacinth (*egeria*) from Delta waterways, where it poses a navigational hazard, have continued. • *The California Department of Boating and* Waterways is planning a program to control another navigational plant pest, *egeria*, for 1999. • Ongoing trapping of red foxes and feral cats plaguing endangered clapper rails, least terns and snowy plovers on the East Bay shore, as *well as colonial nesting birds*, has had good results. A study completed by the S.F. Bay Wildlife Refuge in 1998 shows that since the initiation of the predator management program in the Dumbarton marsh, for example, a clapper rail population of only eight birds in 1991 had leapt to 100 by 1998. The study also indicated that padded leg-hold traps were more effective than cage traps, trapping 87% of foxes caught between 1991-1996 as opposed to the cage traps' 2%. • Border patrol activities have started since 1996 aimed at detecting zebra mussels on incoming boats and at educating boaters about how to prevent accidental transport. Such patrols are conducted by the California Department of Food and Agriculture. Since instituted, mussels have been found on trailered boats roughly half a dozen times a year, and most of them were dead or dessicated.	• Ongoing lawsuits by animal rights activists against fox and cat trapping, and by fishermen *interested in preserving exotic game fish.* • Most aquatic organisms are difficult or impossible to control once established in the Estuary. • Lack of a lead agency or legislation necessary to undertake eradication of Atlantic cordgrass on a regional scale. • Lack of attention to the ecological impacts of ongoing pesticide use (especially copper solutions) to control aquatic plants that pose navigational hazards in the Delta. Such chemicals have serious impacts on aquatic life that need to be addressed in any coordinated plan for Estuary restoration.	• A S.F. Estuary Institute report on the potential spread of the Atlantic zebra mussel in California *suggests the need to identify invasion hot spots* (such as popular recreational reservoirs with lots of interstate boat traffic) and then undertake boater education, monitoring and advance planning for containment and eradication.

PRIORITY 6.

Action	Government & Private Initiatives Public, private and cooperative plans, programs and good intentions	On-the-Ground Implementation Examples of specific, local completed or in-progress projects	Current Gaps & Roadblocks	Ideas & Opportunities for Further Progress
AQUATIC RESOURCES 2.4 **Develop programs to educate the public about problems with exotic species and their incidental transport or introduction.** 96-99 MODERATE 93-96	• A ballast water education program for the West Coast maritime industry, including the Bay-Delta, was funded by SeaGrant and Category III in late 1998. The program, to be run by Sea Grant at the U.C. Cooperative Extension, plans to organize 16 workshops on ballast water management options, bringing industry together with researchers, resource managers and regulators. The program will also produce a newsletter and Web site. • A series of scientific workshops on non-native, invasive species, with a particular focus on risk assessment, is being organized by U.S. EPA's Office of Research and Development. Regional workshops to be held this summer around the country will culminate in a national meeting, and produce white papers. • A team to combat invasion of the *Arundo donax*, also known as giant cane and the "plant from hell," was initiated by U.S. EPA in 1997. The interagency, public-private Team Arundo has since met regularly to strategize prevention and control efforts for this riparian invader. The team will soon produce some major education products aimed informing the public, resource managers and nurseries (who sell the plant) about *arundo*.	• The State of the Estuary conference organized by the S.F. Estuary Project in October 1996 presented over 600 attendees with significant information on exotic species, and associated problems, and resulted in major media coverage. Aforthcoming conference in March 1999 will also update the public and decisionmakers on exotics issues. • *ESTUARY* newsletter continued to report on new scientific research about introduced species and management initiatives to control invasions — reaching over 3,000 readers. Between July 1996 and December 1998, ten articles on exotics appeared in its pages. • The Interagency Ecological Program continued to research exotic species issues related to water management and ecosystem recovery, and to share its findings with scientists, resource managers and the public at its annual conferences and through its quarterly newsletter. • Several informative reports were released in 1997-1998 by the S.F. Estuary Institute, one on S.F. Bay ballast water problems and control options, one on the potential for the spread of the Atlantic zebra mussel into California watersheds; and one on introduced aquatic plants. • Many school- and teacher-based Estuary education programs now reference exotic species problems.		• Research the contribution of the live bait fishery and aquaria trade to invasions, and educate the public about the results.

PRIORITY 6: EXOTIC SPECIES SUMMARY
AVERAGE IMPLEMENTATION LEVEL:

19-44%

PRIORITY 7. Build awareness about CCMP implementation.

Action	Government & Private Initiatives Public, private and cooperative plans, programs and good intentions	On-the-Ground Implementation Examples of specific, local completed or in-progress projects	Current Gaps & Roadblocks	Ideas & Opportunities for Further Progress
PUBLIC INVOLVEMENT 1.1 Build awareness, interest and support in the general public and decision makers for the CCMP's goals and plans. 96-99 SOME 93-96	• Educating local, state and national decision-makers about CCMP implementation, the value of national estuaries and the need to protect them is one goal of the Association of National Estuary Programs' Citizens Action Committee, in which the SF Estuary Project and Friends participate.	• The State of the Estuary conference, organized by the S.F. Estuary Project every two to three years, educates the public, interest groups, agencies and the media about the health of the Estuary and provides up-to-date information on CCMP implementation. The latest conference was held in March 1999. • *ESTUARY* newsletter is mailed bi-monthly to 3,000 decision-makers, scientists and interested members of the public. • S.F. Estuary Project and Friends of the Estuary co-sponsor and regularly participate in fairs, festivals and other events to distribute information and educate the public about the CCMP. • S.F. Estuary Project routinely provides background information to the media about the CCMP, its goals and implementation activities.		• Increase the circulation and/or frequency of *ESTUARY*.
PUBLIC INVOLVEMENT 1.2 & 1.3 Provide and encourage opportunities for direct citizen involvement in implementing the CCMP and making any necessary revisions to it. 96-99 SOME 93-96	• S.F. Estuary Project organizes a CCMP Workshop every two-to-three years, inviting the public, Estuary Project committees, Friends of the Estuary and the S.F. Estuary Institute to evaluate the effectiveness of CCMP implementation, institutional structure and priorities. Recommendations are reviewed by the Implementation Committee and forwarded to the Estuary Project's Executive Council. Working with available resources, staff carry out the recommendations. Such workshops were held in 1996 and early 1999.	• Ongoing meetings and activities of Friends of the SF Estuary, a non-profit, citizen-based organization dedicated to promoting and watchdogging implementation of the CCMP. • Geographic subcommittees of the CCMP Implementation Committee hold regular meetings open to the public. • A public workshop was held on February 5, 1999 to evaluate CCMP progress and priority actions.	• The size and scope of the CCMP as a whole hinders public understanding and awareness.	• Focus public attention on selected specific CCMP actions.
PUBLIC INVOLVEMENT 1.5 Ensure provisions for a central collection and distribution point (clearinghouse) for communication and coordination of all information concerning CCMP issues and the estuary. 96-99 FULL 93-96		• *ESTUARY* newsletter solicits stories from and covers the activities of more than 100 different government agencies, special interest groups, scientific and technical research programs and community groups. • A central S.F. Estuary public outreach office writes and distributes thousands of fact sheets, newsletters, brochures, maps, mailing lists and how-to materials. This information is also available via the Internet on the Estuary Project's homepage.		

PRIORITY 7: CCMP AWARENESS SUMMARY

AVERAGE IMPLEMENTATION LEVEL:

25-50%

PRIORITY 8.

Increase public awareness about the Estuary's natural resources and the need to protect them.

In particular, develop grassroots outreach and school-based education programs.

Action	Government & Private Initiatives Public, private and cooperative plans, programs and good intentions	On-the-Ground Implementation Examples of specific, local completed or in-progress projects	Current Gaps & Roadblocks	Ideas & Opportunities for Further Progress
PUBLIC INVOLVEMENT 2.2 **Work with education groups, interpretive centers, decision-makers and the general public to build awareness, appreciation, knowledge and understanding of the Estuary's natural resources and the need to protect them.** 96-99 SUBSTANTIVE 93-96	• The SF Regional Board permits dischargers to fund environmental projects, including education projects, in lieu of a portion of the fines imposed for violations. Since 1996, more than 20 general and school-based education projects have received funding.	• Custom-designed education programs are offered by Friends of the Estuary to Bay Area schools. Projects include classroom and field lessons, teacher training and curriculum development. More than 15 schools have participated in Friends programs since 1996. • The Aquatic Outreach Institute's Kids in Creeks, Kids in Marshes, Kids in Gardens and Watching Our Watersheds programs train teachers, and through them students and the general public, about the Estuary's natural resources and non-point source pollution. Since 1998, more than 500 teachers have participated in these programs. The Institute's Teacher Action Grant program distributes $20,000 a year to teachers for teaching and prevention of non-point source pollution. Exploring The Estuary, a computerized program about the Estuary, runs as a permanent exhibit in seven museums and visitor's centers around the Estuary and is used by several hundred educators to teach about human impacts on the Estuary. • The Napa County RCD and the San Jose Watershed Grants Program are among dozens of Bay Area agencies and programs that sponsor education projects focusing on Estuary. Others include the Lindsay Wildlife Museum and the Palo Alto Regional Water Quality Control Plant. • More than $400,000 in funding for educational programs in the Delta and Central Valley watersheds was provided by CALFED, Category III and the CVPIA between 1995 and 1998. • S.F. Estuary Project's Boater Education Program works with state and federal agencies to provide outreach and education to the boating community about the Estuary's natural resources and the need to protect them. It works with boaters and marinas on the need to use pump-out stations to prevent pollution. It has developed and distributed ten of thousands of brochures and maps depicting pump-out stations. • San Francisco Bay Savers, a program conducted by the Alameda County Resource Conservation District with funding from the Alameda County-wide Clean Water Program, educates 4th graders about protecting watersheds, creeks and the Bay. The program is offered in 200 classrooms each year. • Adopt-A-Watershed, a national program that uses local watersheds as the foundation of an integrated science curriculum, operates projects in Contra Costa, Marin, San Francisco, San Mateo, San Mateo and Sonoma counties. Outside the classroom, students and volunteers lead long-term field studies, restoration projects and community education projects. • See also Priorities 4 and 5.		• When funded, the San Francisco Bay Area Conservancy program, established in 1998 and administered by the Coastal Conservancy, will be able to undertake and/or fund environmental education projects. • The Port of Oakland is seeking local organizations specializing in environmental education to operate science and environmental education programs at the proposed Middle Harbor Shoreline Park/Middle Harbor Enhancement Area. • Local watershed programs should include public education components.

PRIORITY 8: ESTUARY AWARENESS SUMMARY

AVERAGE IMPLEMENTATION LEVEL:

50-75%

PRIORITY 9.

Implement the Regional Monitoring Program and integrate the results of scientific monitoring into management and regulatory actions.

Build on the 1993 regional monitoring strategy and expand program to address all five key CCMP issues (dredging, pollution, biological resources, land use and freshwater diversion); update monitoring strategy for urban runoff (including air deposition); integrate with Priority 2.

Action

RESEARCH AND MONITORING 2.1

Develop and implement the Regional Monitoring Strategy, which will integrate and expand on existing efforts and eventually be part of a comprehensive Regional Monitoring Program.

96-99

93-96

MODERATE

Government & Private Initiatives

Public, private and cooperative plans, programs and good intentions

- The S.F. Estuary Institute's Regional Monitoring Program for Trace Substances has continued to expand and produce valuable information for water quality regulation and management since 1996, and to better address urban runoff. However, no long-term, regionally applicable and consistent monitoring programs are yet in place for watersheds, land use or wetlands (although some planning has been done on the latter).
- CALFED recently released a draft plan for a Comprehensive Monitoring, Assessment, and Research Program (CMARP) for the Delta, which has the potential to implement certain portions of the CCMP's Regional Monitoring Strategy. It is not yet known how far this new program will reach into the Bay, or if it will overlap with all of the CCMP priority areas. Most of the agencies and staff working on comprehensive monitoring in the Bay-Delta now believe that such efforts will necessarily involve coordination and collaboration among the numerous existing monitoring programs.
- Two recent inventories of current Bay-Delta monitoring programs may help with future efforts to achieve a comprehensive approach. In the first, the state CAMP effort inventoried all coastal water quality monitoring programs (www.sfei.org/CAMP or CERES www site). In the second, CMARP inventoried all monitoring related to CALFED (www.sfei.org/cmarpinv).
- See also Priority 2, Aquatic Resources 1.1.

On-the-Ground Implementation

Examples of specific, local completed or in-progress projects

- A Bay Area Storm Water Regional Monitoring Strategy was developed by BASMAA in 1998 in an effort to coordinate all monitoring efforts in Bay Area. The strategy provides a blueprint for monitoring the effectiveness of storm water best management practices, evaluating beneficial use impacts, assessing the contributions of metals from urban vs. non-urban sources, and investigating the extent and causes of storm water toxicity. See also Priority 4.
- Numerous watershed-based planning and monitoring programs have been launched or continued which more broadly address pollutant sources, land use, wildlife and wetland issues than traditional water quality monitoring efforts. Major new watershed monitoring programs have been started since 1996 in the Sacramento River and Santa Clara Valley watersheds (See Priority 5).
- A comprehensive approach to watershed science was developed by the S.F. Estuary Institute in 1997. With the help of partners and local governments, the Institute is now testing the value of the approach, which emphasizes tiered and regionally consistent steps to inventorying watersheds and establishing quantifiable resource enhancement or restoration goals based on a picture of the past, present, and change.
- The Bay Area Wetlands Ecosystem Goals Project may form the foundation for monitoring progress toward the goals spelled out in the report.
- The City of San Jose spearheaded the development of a "Total Maximum Daily Load" for copper and nickel in the South Bay (See Priority 4), which has resulted in major research and information synthesis efforts and has attracted additional funding (EPA Air Division) for investigation of pollutant transport from air to water.
- The S.F. Regional Board has been using RMP data consistently to inform discharge permit conditions, to help set and refine water quality objectives and standards, and to evaluate appropriate regulatory responses to pollution problems.
- See also Priority 2, Aquatic Resources 1.1.

Current Gaps & Roadblocks

- No comprehensive, all-encompassing monitoring program as envisioned in the CCMP has been established, nor is the CCMP implementation funding or political will available to do so. The RMP for Trace Substances isn't anywhere close to the overall, comprehensive RMP that could, if designed right, really take the pulse of the Estuary. No mechanisms are in place to implement such a comprehensive monitoring strategy, except CMARP, which is as yet only planned and will likely not reach all the way into the Bay. Funding exists to fill large information gaps (especially in the area of land use) that hamper optimal watershed management, public awareness of undesirable conditions, and effective environmental stewardship.
- Lack of explicitly stated, quantifiable environmental goals for watersheds to form the basis of monitoring.
- Funding shortfalls are causing the U.S. Geological Survey to close many of its stream gauging stations — reducing the management and scientific communitys' ability to establish pollutant loading estimates or to track changes in flow regime over time.
- Limited current resources for monitoring the success of restoration actions, such as those associated with large-scale flood management efforts in the Napa River watershed.
- No funding for ambient water quality monitoring on the part of Central Valley Boards nor for any tributary monitoring upstream of the Estuary.

Ideas & Opportunities for Further Progress

- Legislative fixes may be necessary to allow for tracking the effectiveness of habitat restoration actions.
- Develop a funding pool for wetlands monitoring.
- Maximize access to information contained in GIS based systems, in which geographic and biotic features of the landscape are mapped on computers. Such systems are increasing part of resource inventories and planning efforts undertaken by universities, consultants and agency staff alike. If used correctly and accessed by diverse researchers, GIS data can help facilitate information integration and coordination.
- Make sure local entities aren't already collecting data needed before embarking on new RMP projects.

PRIORITY 9: REGIONAL MONITORING SUMMARY

AVERAGE IMPLEMENTATION LEVEL:

25-50%

PRIORITY 10.

Work with federal and state agencies to include CCMP recommendations in other planning and restoration efforts and funding decisions.

Action	Government & Private Initiatives Public, private and cooperative plans, programs and good intentions	On-the-Ground Implementation Examples of specific, local completed or in-progress projects	Current Gaps & Roadblocks	Ideas & Opportunities for Further Progress
No specific CCMP actions 96-99 SOME	• Under the under the Clinton Administration's 1998 Clean Water Action Plan, EPA encourages states to consider existing watershed management plans, such as the CCMP, as Watershed Restoration Action Strategies for priority watersheds. In FY 1999, EPA received $100 million for implementation of these strategies.	• A comparison of CCMP and CALFED program activities in the areas of water quality, water use, land use and research/monitoring was conducted by the S.F. Estuary Project. The Estuary Project suggested that CALFED adopt CCMP actions in these areas. Although some of the issues raised were addressed in drafts of CALFED's plans, there was no wholesale adoption of CCMP actions. • The S.F. Estuary Project's Delta In-Channel Islands Workgroup became apart of CALFED's Levee and Channel Technical Team. The workgroup circulated a "Coordination of Efforts" document stipulating a commitment to protecting about 800 small Delta islands to agencies, interest groups and landowners, which resulted in the development of a demonstration project to test methods of protecting the islands from erosion. • The National Estuary Project and U.S. EPA are working with states to encourage CCMP implementation where appropriate through state revolving funds.	• An S.F. Estuary Project request that CALFED include the entire Bay in the geographic scope of its Ecosystem Restoration Program was denied. CALFED has recently funded a few projects in areas south of the original geographic scope of its plan; however, CALFED's focus continues to be the Delta and its watershed. • SFEP staff charged with CCMP implementation were required to resign from BDAC in order to apply for grants through CALFED due to perceived conflicts of interest. • Key resource agencies are often not represented at CCMP meetings. Greater partnership between agencies is needed.	• The US Department of the Interior's FY 2000 budget proposal includes a request for $75 million for CALFED implementation and $20 million to initiate other activities in accord with the CALFED program, including water use efficiency, water quality and watershed management initiatives. • CCMP representatives should continue to work with CALFED to include the entire Bay in the CALFED program.

PRIORITY 10: CCMP INCLUSION SUMMARY

AVERAGE IMPLEMENTATION LEVEL:

0-25%

APPENDIX A

Wetlands and Riparian Habitat Acquired and Restored in the S.F. Bay-Delta Estuary* Between July 1996 and March 1999

MAJOR WETLAND & RIPARIAN ACQUISITIONS: 10,183 acres (2,928 wetlands and 7,255 riparian and floodplain)

(of current wetland areas or areas to be restored; note some overlap with restoration projects list)

NORTH BAY

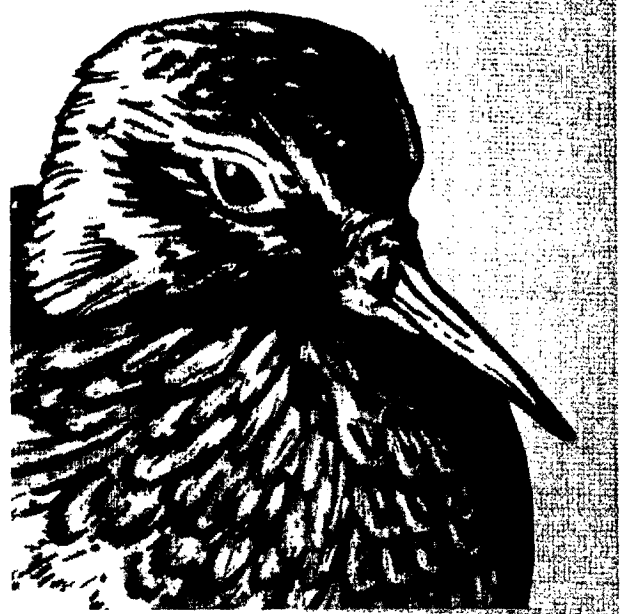
- Camp Two, Sonoma County, 608 acres (diked baylands), Wildlife Conservation Board & Cal Fish & Game
- Bull Island, San Pablo Bay, 109 acres (existing wetlands), Napa County Land Trust & Cal Fish & Game
- Pillar Point, San Mateo, 23 acres (existing wetlands), San Mateo County Parks

SOUTH BAY

- Bair Island, San Mateo County, 1,600 acres (diked baylands), Peninsula Open Space Trust, U.S. Fish & Wildlife, Coastal Conservancy, Wildlife Conservation Board

DELTA/SUISUN

- Bjelland Property, Sacramento County, 93 acres (wetlands), the Nature Conservancy
- Cosumnes River Preserve, Sacramento County, 35 acres (riparian), Department of Water Resources
- Cosumnes River Preserve, Whaley Property, Sacramento County, 187 acres (87 marsh, 100 riparian of a 293 acre property), Central Valley Habitat Joint Venture
- Cosumnes River Preserve (Shaw Property), Sacramento County, 182 acres (riparian of a 597 acre property), The Nature Conservancy
- Denier Family Trust, Sacramento County, 300 acres (riparian & vernal of a 1,200 acre property), The Nature Conservancy and Wildlife Conservation Board
- Grizzly Island Wildlife Area, Solano County, 260 acres, Cal Fish & Game
- Medford Island, San Joaquin County, 232 acres (riparian), Natural Resources Conservation Service
- Park Property, Sacramento County, 300 acres (riparian of a 735 acre property), The Nature Conservancy and Wildlife Conservation Board
- San Joaquin River National Wildlife Refuge, 8,106 acres (riparian), U.S. Fish & Wildlife
- Stone Lakes National Wildlife Refuge, Sacramento County, 148 acres, U.S. Fish & Wildlife



COMPLETED RESTORATION AND ENHANCEMENT PROJECTS: 13,656 acres (6,100 restoration and 7,556 enhancement)

NORTH BAY

- Gallinas Creek, Marin County, 5 acres (enhancement), Marin Audubon Society and Coastal Conservancy
- Tolay Creek, Sonoma County, 435 acres (117 restoration and 318 enhancement), U.S. Fish & Wildlife
- Tubbs Island, Sonoma County, 125 acres (enhancement), Ducks Unlimited & U.S. Fish & Wildlife

SOUTH BAY

- Ora Loma Marsh, 364 acres (restoration), East Bay Regional Parks
- Shoreline at Mountain View, Santa Clara County, 80 acres (restoration), City of Mountain View

PLANNED OR IN-PROGRESS RESTORATION AND ENHANCEMENT PROJECTS: 19,109 acres (17,878 restoration and 1,231 enhancement)

NORTH BAY

- Alameda Naval Air Station, Alameda County, 32 acres (restoration), U.S.Fish & Wildlife
- American Canyon, Napa County, 519 acres (restoration/490 acre acquisition pending), Cal Fish & Game, City of American Canyon, Napa Land Trust
- Bay Point, Contra Costa County, 150 acres (restoration), East Bay Regional Parks
- Camp Two, Sonoma County, 608 acres (restoration), Cal Fish & Game and Wildlife Conservation Board
- Crissy Field, San Francisco, 30 acres (restoration), GGNRA+
- Cullinan Ranch, Sonoma County, 1,496 acres (restoration), U.S. Fish & Wildlife and Ducks Unlimited
- Hamilton, Marin County, 800 acres (restoration/700 acre acquisition pending), Coastal Conservancy
- MacNabney Marsh, Contra Costa County, 200 acres (restoration), Shell Trust, Contra Costa Mosquito & Vector Control, Cal Fish & Game & East Bay Regional Parks+
- Martinez Shoreline, Contra Costa County, 400 acres (restoration), East Bay Regional Parks
- Napa Sonoma Marshes Wildlife Area, 9,000 acres (restoration), Cal Fish & Game (Ducks Unlimited will enhance Pond 1 — 6 acres and restore Pond 8 — 173 acres in near future)
- Napa River Flood Contol, Napa County, 115 acres, (floodplain restoration & enhancement), Napa County and Coastal Conservancy
- Petaluma Marsh Expansion Project, Marin County, 100 acres (restoration/50 as mitigation), Marin Audubon, CalTrans and Coastal Conservancy
- Point Edith, Contra Costa County, 850 acres (enhancement), Contra Costa Mosquito & Vector Control
- Rush Creek, Marin, 280 acres (enhancement), Marin Audubon Society
- Tubbs Island, Sonoma County, 72 acres (restoration), US Fish & Wildlife

SOUTH BAY

- Bair Island, San Mateo County, 1,600 acres (restoration), U.S. Fish & Wildlife

WETLANDS LOST

- Bay Region, 71 acres lost to development, 1996-98 (147 creeated, restored or enhanced in mitigation)
- Statewide, 2,375 acres lost 1996-97.

MITIGATION-RELATED RESTORATION PROJECTS

COMPLETED OR PLANNED AND FUNDED
3,579 acres and 200,000 feet

NORTH BAY

- Montezuma Wetlands, Solano County, 1,823 acres (enhancement using some dredged material), Levine Fricke
- San Pablo Marsh, 1,400 acres (enhancement), CalTrans, U.S. Fish & Wildlife, Cal Fish & Game

SOUTH BAY

- Arrowhead Marsh, Martin Luther King Regional Shoreline, 72 acres, East Bay Regional Parks & Port of Oakland
- Bay West Cove, San Mateo County, 6 acres (enhancement), Bay West Cove LLC
- Moseley Tract, San Mateo County, 52 acres (restoration), City of San Jose
- Pier 98, San Francisco County, 14 acres (enhancement), Port of San Francisco
- Ravenswood, San Mateo County, 200 acres, Mid-Peninsula Regional Open Space District

DELTA/SUISUN

- Canal Ranch, San Joaquin County, 2,000 feet (SRA restoration), Department of Water Resources
- Decker Island, Solano County, 10 acres (riparian/wetland restoration), Department of Water Resources
- Sherman Island Berm, 2 acres (island creation), Department of Water Resources
- Twitchell Island, 75,000 feet of SRA and 43,000 feet of emergent marsh, Department of Water Resources

WETLAND CONSERVATION EASEMENTS

- Wetland acres protected under perpetual conservation easements (federal, state and private) in the Central Valley and Suisun Marsh have grown from 67,292 acres in 1996 to over 75,000 acres as of March 1999.

DELTA/SUISUN

- David Baker Property, Yolo, 25 acres (enhancement), Central Valley Habitat Joint Venture
- Partners for Fish & Wildlife, Sacramento County, 15 acres (enhancement), Ducks Unlimited, US Fish & Wildlife
- Can Can Duck Club, Solano County, 515 acres (enhancement), Central Valley Habitat Joint Venture
- Cosumnes River Preserve, Sacramento County, 578 acres (3 enhancement projects) & 203 acres (2 restoration projects), Central Valley Habitat Joint Venture
- Cosumnes River Preserve, Valensin Ranch, Sacramento County, 60 acres (restoration), Central Valley Habitat Joint Venture
- Drake Sprig Duck Club, Solano County, 170 acres (enhancement), Central Valley Habitat Joint Venture
- Empire Tract, Sacramento County, 180 acres (restoration), U.S. Fish & Wildlife and Central Valley Habitat Joint Venture
- Greenhead Duck Club, Solano County, 300 acres (enhancement), Central Valley Habitat Joint Venture
- Joice Island, Solano County, 900 acres (enhancement) Ducks Unlimited and Central Valley Joint Venture
- Mark Frelier Property, Contra Costa County, 437 acres (restoration), Natural Resources Conservation Service and Central Valley Habitat Joint Venture
- Medford Island, San Joaquin County, 385 acres (restoration), Natural Resources Conservation Service & Central Valley Joint Venture
- Steve Synder Property, Yolo, 3 acres (restoration), Central Valley Habitat Joint Venture
- Stone Lakes National Wildlife Refuge, Sacramento County, 122 acres (restoration), US Fish & Wildlife and Ducks Unlimited
- Suisun Marsh, Solano County, 2,500 acres (enhancement), BurRec and Central Valley Habitat Joint Venture
- Suisun Marsh, 1,255 acres (3 enhancement projects), Central Valley Habitat Joint Venture
- Upper Beach Lake, Sacramento County, 110 acres (50 marsh & 60 riparian restoration), Central Valley Habitat Joint Venture
- Venice Island, San Joaquin County, 700 acres (enhancement), Ducks Unlimited
- Wheeler Island, Solano County, 150 acres (enhancement), Partners for Fish & Wildlife and Central Valley Habitat Joint Venture
- Yolo Basin Wetlands, Yolo County, 3,660 acres (restoration), Army Corps, Cal Fish & Game, Ducks Unlimited
- Yolo Basin Wetlands, Davis Site, Yolo County, 396 acres (restoration), Army Corps, City of Davis
- Yolo Basin Wetlands, Yolo County, 3 acres (restoration), Yolo Basin Foundation
- Baumberg Tract, Alameda County, 835 acres (restoration), Cal Fish & Game and East Bay Regional Parks +
- Oliver Property, Alameda County, 250 acres (restoration), Coastal Conservancy, Hayward Area Recreation District and East Bay Regional Parks+

DELTA/SUISUN

- Benicia Waterfront, 8 acres, Solano County, (restoration), City of Benicia
- Cache Slough, Solano County, 2,000 ft (levee bank restoration), Reclamation District 2060
- Cosumnes River Valensin Ranch, Sacramento County, 60 acres (enhancement), The Nature Conservancy
- David Baker Property, Yolo, 25 acres (restoration), California Waterfowl Association
- Fern-Headreach, San Joaquin County, 168 acres (restoration and acquisition), Thomas Luckey, L&L Farms
- Hill Slough West, Solano County, 200 acres (restoration), Cal Fish & Game
- Medford Island, San Joaquin County, 41 acres (enhancement), Natural Resources Conservation Service
- Prospect Island, Solano County, 1,200 acres (restoration) and 20,000 feet SRA, BurRec, Army Corps & Department of Water Resources
- Tyler Island, Sacramento County, 3 acres (restoration), Habitat and Restoration Team
- Rhode Island, Contra Costa County, 67 acres (restoration), Cal Fish & Game and Department of Water Resources

SOURCES:

CALFED Funded Projects List (CUWA, CAT III, Prop 204, CALFED, CVPIA)

Central Valley Habitat Joint Venture, North American Waterfowl Management Plan International Tracking System, U.S. Fish & Wildlife

State of the State's Wetlands, December 1998, Governor Pete Wilson, Resources Agency, Cal EPA

San Francisco Bay Joint Venture

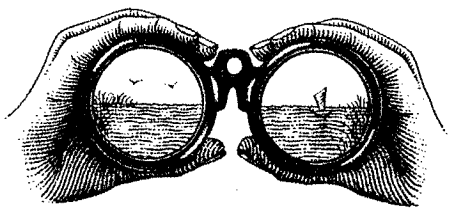
S.F. Bay Regional Water Quality Control Board *1998 Wetlands Inventory* and *Wetland Mitigation and Monitoring in the S.F. Bay Region 1988-1995.*

Special thanks for truth-testing by Chris Uncle, The Nature Conservancy, Carl Wilcox, Cal Fish & Game, Nancy Schafer, S.F. Bay Joint Venture, Ruth Ostroff, Central Valley Habitat Joint Venture, and Marge Kolar and Tom Harvey, U.S. Fish & Wildlife.

* Nine Bay counties and three Delta counties: Sacramento, San Joaquin and Yolo.

\+ Some mitigation dollars used, but not direct mitigation project.

NEW PRIORITIES, NEW FRONTIERS 1999-2004



CONCLUSION

This report card documents progress in tackling the top ten critical issues facing Bay-Delta users, managers, watchdogs and communities in 1996. Three years later, these critical issues remain much the same but with a different spin, reflecting awareness of changes in the times, the ecosystem, the politics, the funding and the effectiveness of efforts to address the issues documented in this report card.

Based on these changes, diverse interests involved in using, managing, conserving and restoring the Bay-Delta revisited the priorities chosen in 1996 and updated them for 1999-2004. The following priorities will guide the efforts of the lead federal and state agencies, the implementation committee, and the nonprofits who agreed in 1993 to champion implementation of the S.F. Estuary Project's 145-action *Comprehensive Conservation and Management Plan* for the Bay and Delta. Each priority appears below followed by the specific language of the relevant CCMP actions, as crafted by regional consensus and approved by the Governor and the U.S. EPA Administrator in 1993.

In general, it is the overall goal of those responsible for oversight of CCMP implementation to facilitate integration and coordination of regulatory, planning, management and monitoring programs to address CCMP actions, priorities and bottlenecks.

The CCMP's champions will also work with federal and state agencies, and through the political process, to build CCMP recommendations into all Bay-Delta planning and restoration efforts and funding decisions.

To these ends, they will also promote multi-agency development and adoption of regulatory requirements and monitoring protocols to expedite ecosystem restoration, and to address bottlenecks such as multi-media (water/land/air) pollution problems and local/regional land use issues.

TOP PRIORITY

Expand, restore and protect Bay-Delta wetlands.

Acquire more wetlands through public-private partnerships and expanded private state and federal financial assistance to individual landowners; restore non-wetland areas to wetlands (including seasonal) or riparian (included shaded riverine) habitat; complete a comprehensive regional wetlands management plan (which includes public acquisition priorities, public-private restoration efforts, and improved mitigation; and enhance the biodiversity within all publicly owned wetlands); establish an implementation program to achieve wetland protection policies; and improve wetland protection under the Clean Water Act (including strengthening wetland regulation programs).

CCMP Actions: WT 1.1, 2.1.3, 2.4, 3.1, 3.2, 4.1 and WL 2.2

OTHER PRIORITIES

Prevent the introduction of exotic organisms, plants and animals into the Estuary from all sources, and control their spread.

Develop, implement and enforce stringent regulations to control the discharges of ships ballast water within the Estuary (both in the Bay and in upstream fresh water ports); prohibit the intentional introduction to aquatic exotic species; control problem exotic species already in the Estuary; implement predator control programs in areas where introduced predators are a constraint to maintenance and restoration of native populations; develop programs to educate the public about exotic species impacts, and their incidental transport or introduction.

CCMP Actions: AR 2.1, 2.2, 2.3, 2.4 & WL 3.1

Promote watershed management throughout the Estuary.

Prepare and implement watershed management plans that include the following complimentary elements: wetland protection, stream protection and the reduction of pollutants in runoff; include watershed management in local general plans.

CCMP Actions: LU 1.1 & 3.1

Create incentives that encourage local government, landowners and communities to protect and restore the Estuary.

Create economic (and institutional) incentives that encourage local governments to take action to protect the Estuary; develop new funding mechanisms to pay for plans, physical improvements and program administration to protect estuary resources (make federal and state funds available for local watershed planning and other programs, as well as for capital improvements and maintenance projects); investigate and create incentives that promote active private sector participation in cooperative efforts to protect and restore the Estuary; identify and develop consistent policies for integrated resource protection on the part of local governments, and integrate with state land-use related initiatives.

CCMP Actions: LU 5.1, 5.2, 5.3, 2.1 & 1.3

Reduce pollution of the Estuary from urban and agricultural runoff, and other non-point sources.

Improve the management and control of urban runoff from public and private sources (extend stormwater programs to fast-growing Delta towns); improve the management and control of agricultural sources of toxic substances; develop control measures to reduce pollutant loadings from energy and transportation systems (and to address multi-media, multi-jurisdictional pollution management problems); pursue a mass emissions strategy (TMDLs) to reduce pollutant discharges from all sources; increase long-term education programs on pollution prevention.

CCMP Actions: 2.4, 2.5, 2.6 & 2.1 and PI 2.5

Strengthen public awareness about the Estuary's natural resources.

Build awareness, appreciation, knowledge and understanding of the Estuary's natural resources and the need to protect them; educate the public about how human actions impact the Estuary (and about the connections between land use, transportation and water quality); build awareness about Bay-Delta progress in environmental management, restoration and protection efforts as well as setbacks (i.e. CCMP implementation); provide opportunities for citizen involvement in CCMP implementation, and for revisions to the CCMP; provide a central clearinghouse for communication and coordination of all information concerning the Estuary.

CCMP Actions: PI 1.1, 1.2, 1.3, 1.5 & 2.2 and LU 4.1

Expand the regional monitoring program to address all key CCMP issues, including pollution, wetlands, watersheds, dredging, biological resources, land use and flows. Integrate the results of scientific monitoring into management and regulatory actions.

Develop and implement the regional monitoring strategy, which will integrate and expand on existing efforts and eventually be part of a comprehensive regional monitoring program. Refine and coordinate existing monitoring programs to: better evaluate ecosystem responses to phased and long term water quality and flow standards; and to more fully characterize ecosystem processes and properties.

CCMP Actions: RM 2.1 and AR 1.1

Promulgate baseline inflow standards for San Francisco, San Pablo and Suisun Bays to protect and restore the Estuary ecosystem.

Adopt and implement water quality and flow standards and operational requirements designed to halt and reverse the decline of aquatic estuarine resources. (The standard should take the form of a water right, water quality standard or state or federal law.)

CCMP Actions: AR 4.1, 5.1. 5.2, 5.3, 6.1, 6.2 & 6.3

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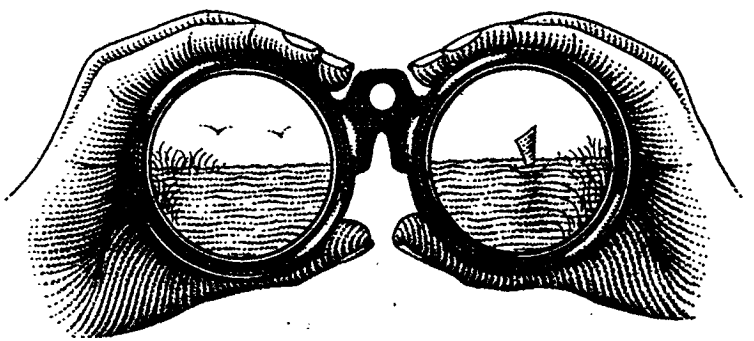

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